132/33/13.8KV SUBSTATION : 8501 EXISTING/MODIFIED 33KV SYSTEM DRGS	OPERATIONAL SINGLE LINE DIAGRAM	1
	SCHEMATICS DRAWINGS 33KV SYSTEM EXISTING/MODIFIED	2
REINFORCEMENT OF S/S 8808,8812 & 8501		

CONTRACTOR	:	SAUDI SERVICES FOR ELECTRO MECHANIC WORKS CO. LTD.
CLIENT	:	SAUDI ELECTRICITY COMPANY, CENTRAL REGION BRANCH
PROJECT	:	REINFORCEMENT OF S/S 8501, 8808 & 8812
SUBSTATION	:	S/S 8501
CONTRACT NO.	:	516/20/3
TITLE	:	OPERATION SINGLE LINE DIAGRAM – S/S 8501

CLIENT
KINGDOM OF SAUDI ARABIA
SAUDI ELECTRICITY COMPANY
CENTRAL REGION BRANCH
PROJECTS MANAGEMENT DEPARTMENT

المالك
المملكة العربية السعودية
الشركة السعودية للكهرباء
فرع المنطقة الوسطى
ادارة تنفيذ المشاريع

CONTRACTOR :
SAUDI SERVICES FOR ELECTRO MECHANIC WORKS CO. LIMITED
P.O BOX 6341, RIYADH 11442

المقاول
الشركة السعودية لخدمات الأعمال الكهربائية والميكانيكية المحدودة
ص ب ٦٣٤١ الرياض ١١٤٤٢

PROJECT NO. : 516/20/3

رقم العقد ٣/٢٠/ ٥١٦

PROJECT
REINFORCEMENT OF
132 KV SUBSTATIONS
NOS. 8501, 8808 & 8812

المشروع
تعزيز محطات جهد ١٣٢ ك ف
ارقام ٨٨١٢ , ٨٨٠٨ , ٨٥٠١

DESIGN BY	KARTHIK	DATE : 01 29
DRAWN BY	MIM	SCALE : NTS

DESIGNER :
ABB AUTOMATION CO. LTD.
شركة ايه بي بي لأجهزة التحكم الآلي المحدودة
P.O BOX 414 RIYADH 11383
KINGDOM OF SAUDI ARABIA

TITLE:
OPERATION SINGLE LINE DIAGRAM
8501

DWG. NO. S10114-AAAAA
SHEET # 000
REV. # 00

AS BUILT

Based on

Rev In	Revision	Appd	Year Week
00	AS BUILT	RG	03 46

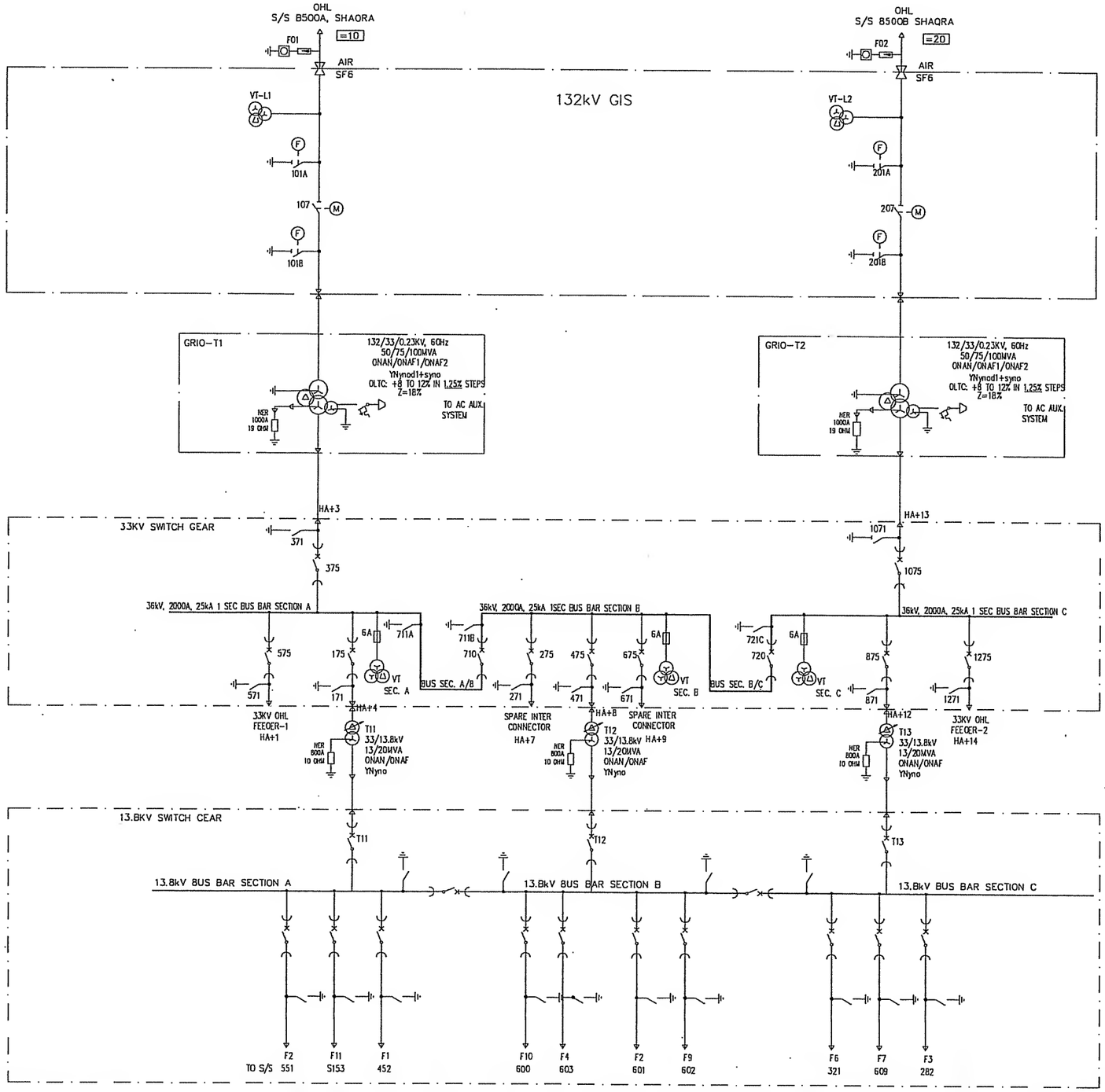
Prepared 01 29 KARTHIK
Approved 01 29 KAMAL AL-MUHANNA
S/S 8501 , 132/33/13.8KV
SEC-CRB, CONTRACT No. 516/20/3

OPERATIONAL SINGLE LINE DIAGRAM
(EXISTING/MODIFIED)

ABB Electrical Ind.

Resp dept AUT | Rev ind 00 | Lang en
S10114-AAAAA | Sheet 000 | Cont 001

abbd_a3 rev. b



LEGENDS

	POWER TRANSFORMER
	33kV CIRCUIT BREAKER
	3-PHASE VOLTAGE TRANSFORMER
	EARTHING SWITCH FAST ACTING
	132kV ON LOAD DIS CONNECTOR
	MOULDED CASE CIRCUIT BREAKER
	CHL FEEDER
ACDB	AC DISTRIBUTION BOARD
	UGF CABLE SEALING HEAD
	OHL CONNECTION - (GAS TO AIR BUSHING)
	SURGE ARRESTOR
	NEUTRAL EARTHING RESISTOR
	BUSHING CABLE CONNECTION
	FUSE (RATINGS SHOWN)

AS BUILT

CLIENT
KINGDOM OF SAUDI ARABIA
SAUDI ELECTRICITY COMPANY
CENTRAL REGION BRANCH
PROJECTS MANAGEMENT DEPARTMENT

المالك
المملكة العربية السعودية
الشركة السعودية للكهرباء
فرع المنطقة الوسطى
ادارة تنفيذ المشاريع

CONTRACTOR :
SAUDI SERVICES FOR ELECTRO MECHANIC WORKS CO. LIMITED
P.O BOX 6341, RIYADH 11442

المقاول
الشركة السعودية لخدمات الأعمال الكهروبائية والميكانيكية المحدودة
ص.ب ٦٣٤١ الرياض ١١٤٤٢

SSEM

PROJECT NO. : 516/20/3

رقم العقد ٣/٢٠/ ٥١٦

PROJECT
REINFORCEMENT OF 132 KV SUBSTATIONS
NOS. 8501, 8505 & 8812

المشروع
تعزيز محطات جهد ١٣٢ ك ف
أرقام ٨٨١٢ , ٨٨٠٨ , ٨٥٠١

DESIGN BY	KARTHIK	DATE : 01 35	
DRAWN BY	MM	SCALE : NTS	

DESIGNER :
ABB AUTOMATION CO. LTD.
شركة إيه بي بي لأجهزة التحكم الآلي المحدودة
P.O BOX 414 RIYADH 11383
KINGDOM OF SAUDI ARABIA

TITLE:
OPERATIONAL SINGLE LINE DIAGRAM (EXISTING)-S/S 8501

DWG. NO. S10114-AAAAA
SHEET # 001
REV. # 00

File name

Rev	Revision	Appd	Year	Week
00	AS BUILT	RG	03	46

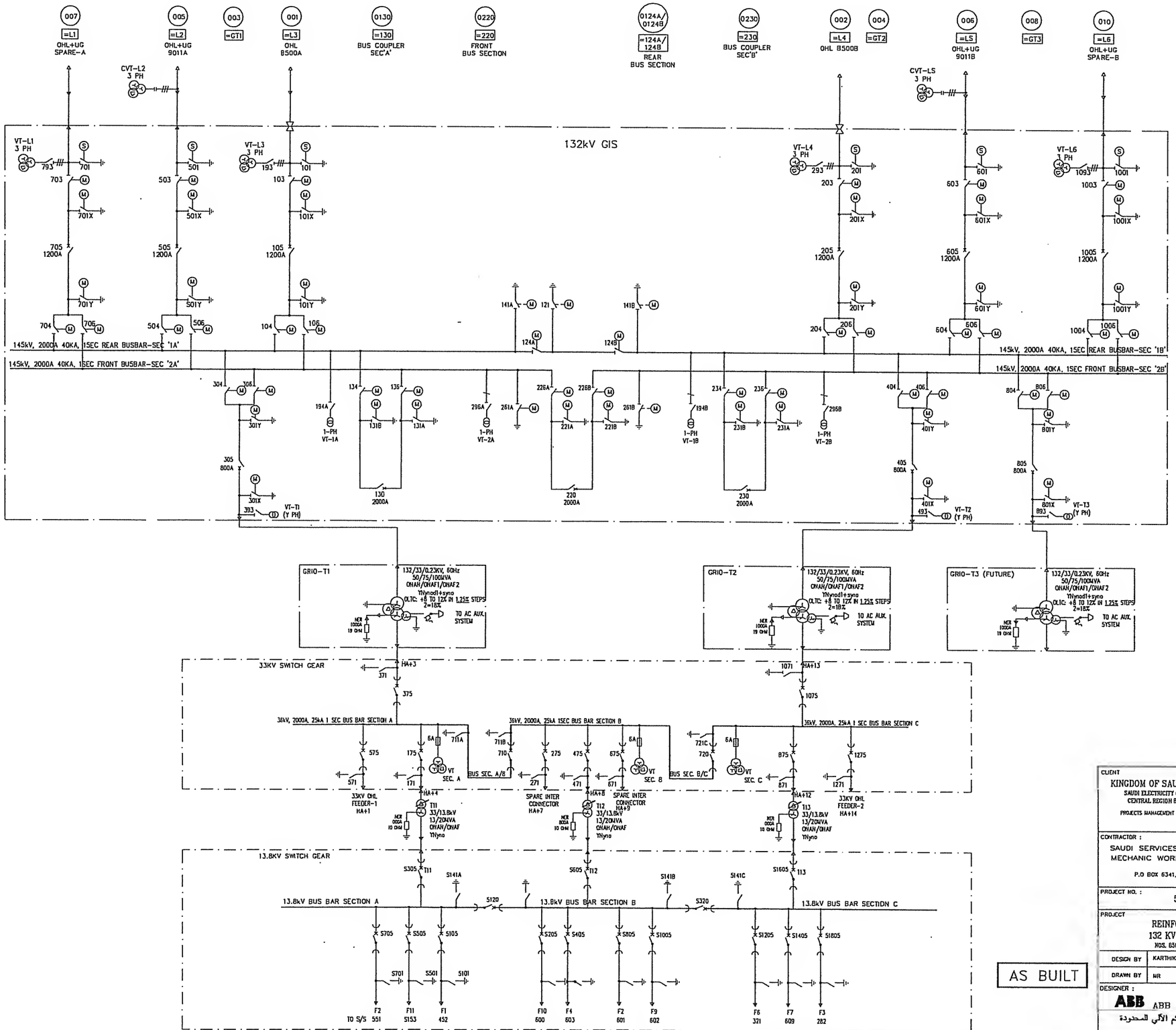
Prepared 01 35 KARTHIK
Approved 01 35 KAMAL
S/S 8501, 132/33/13.8kV
SEC-CRB, CONTRACT NO.: 516/20/3

OPERATIONAL SINGLE LINE DIAGRAM (EXISTING)

ABB Electrical Ind

Resp dept AUT
Rev ind 00
Lang en
Sheet 001
Cont. 002
S10114-AAAAA

AUT-A3-C1-REV0



LEGENDS

	POWER TRANSFORMER
	33kV CIRCUIT BREAKER
	3-PHASE - GIS VOLTAGE TRANSFORMER WITH MANUAL OPERATING DEVICE
	CAPACITIVE VOLTAGE TRANSFORMER (3 PHASE)
	132kV CIRCUIT BREAKER
	132kV 1-PHASE VOLTAGE TRANSFORMER WITH MANUAL OPERATING DEVICE
M	MAINTENANCE EARTHING SWITCH (MOTOR DRIVEN OPERATION)
S	HIGH SPEED EARTHING SWITCH (MOTOR DRIVEN SPRING CHARGED OPERATION)
M	DISCONNECTING SWITCH (MOTOR DRIVEN OPERATION)
	MOULDED CASE CIRCUIT BREAKER
	OHL FEEDER
ACDB	AC DISTRIBUTION BOARD
	UGF CABLE SEALING HEAD
	OHL CONNECTION - (GAS TO AIR BUSHING)
	NEUTRAL EARTHING RESISTOR
	BUSHING CABLE CONNECTION
	FUSE (RATINGS SHOWN)

132KV DOUBLE BUSBAR GIS
MAKE: HICO
RATED: 145kV, 2000A AT 55°c
SHORT CIRCUIT RATING: 40KA, 1SEC.

NOTE:

1. THE EXISTING 132/33kV GT1/GT2 FEEDER ARRANGEMENT FED FROM 8500 S/S TO BE MODIFIED TO FEED FROM 132KV GIS-DOUBLE BUSBAR, AS PER THE ARRANGEMENT SHOWN IN THIS SLD

AS BUILT

CLIENT
KINGDOM OF SAUDI ARABIA
SAUDI ELECTRICITY COMPANY
CENTRAL REGION BRANCH
PROJECTS MANAGEMENT DEPARTMENT
المالك
المملكة العربية السعودية
الشركة السعودية للكهرباء
فرع المنطقة الوسطى
ادارة تنفيذ المشاريع

CONTRACTOR :
SAUDI SERVICES FOR ELECTRO MECHANIC WORKS CO. LIMITED
P.O BOX 6341, RIYADH 11442
المقاول
الشركة السعودية لخدمات الأصل الكهربائية والميكانيكية المحدودة
ص ب ٦٣٤١ الرياض ١١٤٤٢

PROJECT NO. : 516/20/3
رقم العقد ٢/٢٠/ ٥١٦

PROJECT
REINFORCEMENT OF 132 KV SUBSTATIONS
NOS. 8501, 8808 & 8812
المشروع
تعزيز محطات جهد ١٣٢ ك ف
أرقام ٨٨١٢ , ٨٨٠٨ , ٨٥٠١

DESIGN BY	KARTHIK	DATE : 01 35	
DRAWN BY	MR	SCALE : NTS	

TITLE: OPERATIONAL SINGLE LINE DIAGRAM S/S 8501

DESIGNER : ABB ABB AUTOMATION CO. LTD.
شركة ابه بي بي لأجهزة التحكم الآلي المحدودة
P.O BOX 414 RIYADH 11383 KINGDOM OF SAUDI ARABIA

DWG. NO. S10114-AAAAA
SHEET # 002
REV. # 00

File name

Rev	In	Revision	Appd	Year	Week
00		AS BUILT	RG	03	46

Prepared 01 35 KARTHIK
Approved 01 35 KAMAL
S/S 8501, 132/33/13.8kV
SEC-CRB, CONTRACT NO.: 516/20/3

OPERATIONAL SINGLE LINE DIAGRAM (MODIFIED)

ABB ABB Electrical Ind.

Resp dept AUT
Rev ind 00
Lang en
Sheet 002
Cont. --
S10114-AAAAA

AUT-A3-C1-REVO

ITEM	DESIGNATION	SHEET
=1	33/13,8kV TRANSFORMER BAY T11	1
=2	33kV INTERCONNECTOR LINE	51
=3	33kV INCOMING TRANSFORMER BAY	101
=4	33/13,8kV TRANSFORMER BAY T12	151
=6	33kV INTERCONNECTOR LINE	251
=8	33/13,8kV TRANSFORMER BAY T13	351
=10	33kV INCOMING TRANSFORMER BAY	451
=71	33kV BUSBAR ZONE 1	651
=T11	33/13,8kV TRANSFORMER T11	701
=72	33kV BUSBAR ZONE 2	751
=T12	33/13,8kV TRANSFORMER T12	801
=73	33kV BUSBAR ZONE 3	851
=T13	33/13,8kV TRANSFORMER T13	901
=AB	33kV BUSSECTION	951
=BC	33kV BUSSECTION	1001

Drawn by | Form No. | Sheet | Cont | Year Week | Dept | Rev Ind

SYMBOL ID /D:XL824028-FBR:0.10/0 92-07-02 18.50

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

S/S 8501
33kV SWG
LIST OF CONTENTS

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TOCF Year Week 90 36

اشطب الزائد
AS BUILT

الشركة السعودية الموحدة للكهرباء بالمنطقة الوسطى
SCECO CENTRAL PROJECTS MANAGEMENT DEPARTMENT
CONTRACT NO. 503/9/3
PROJECT: - WASHEM, DAWADMI & SUDAIR PROJECT
132/33 kV-MAJMA'AH S/S 8501
CONTRACTOR: ACEM - ASEA

L 9743.1017
XL 824 028-FBR

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Lang	Sheet
	0.10
Rev Ind	Cont
2	1

ABB HVD

ITEM	DESIGNATION	SHEET
+XA.1	SCADA INTERFACE EQUIPMENT	12
+HA.4	AUX. VOLTAGE SUPPLY	15
	HEATING AND LIGHTING	16
	C.B. OPERATION CIRCUITS	18
-175	CIRCUIT BREAKER EQUIPMENT	19
	INTERLOCKING	23
-171	EARTH SWITCH EQUIPMENT	24
	TRANSFORMER DIFFERENTIAL PROT	27
	OVERCURRENT PROT	28
-T11	CURRENT TRANSFORMER	30

SYMBOL ID /D:XL824028-F8R:1/0 DATE 91-05-31 12.10

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

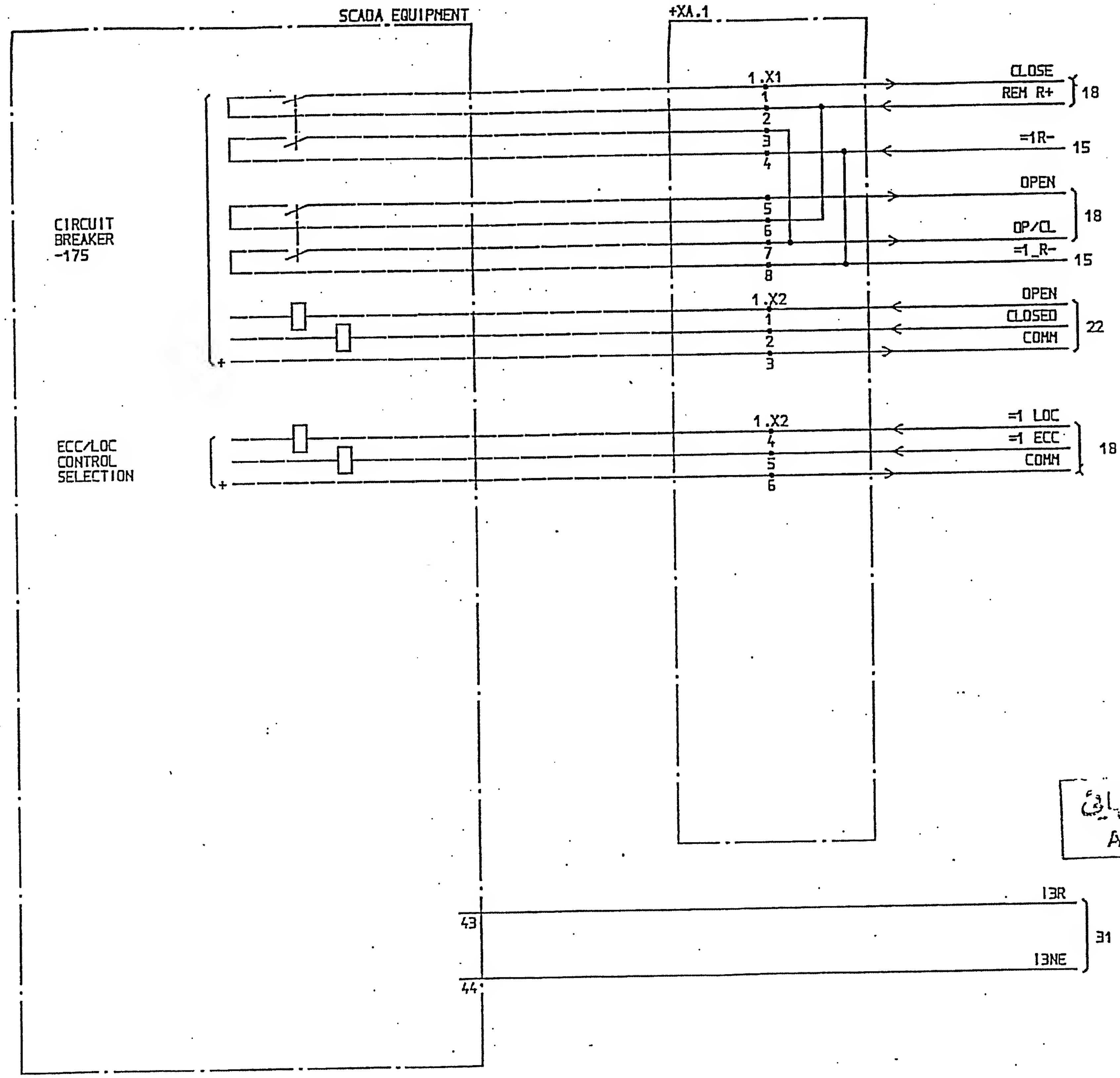
=1
33/13,8kV TRANSFORMER BAY T11
LIST OF CONTENTS

Design checked by: B NILSSON
Drawing checked by: S STRIOSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Ins by Dept: TCF Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Rev Ind	Sheet
Lang	Sheet
	1
Rev Ind	Cont.
1	12



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:12/0

DATE 91-05-31 12.10

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=1
33/13,8kV TRANSFORMER BAY T11
SCADA INTERFACE EQUIPMENT

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TCF
Year Week: 90 10

L 9743.1017
XL 824 028-FBR

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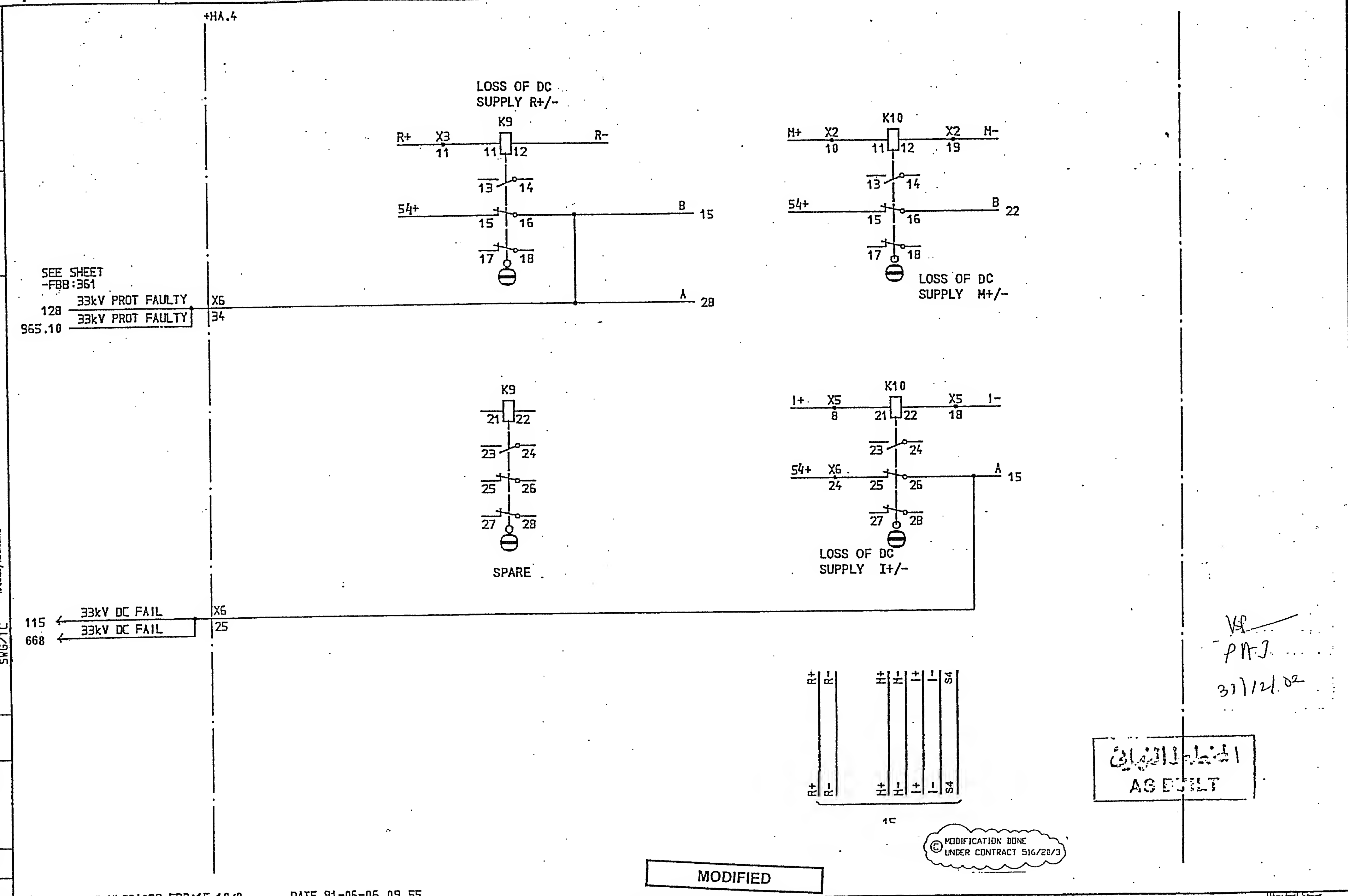
Cont: 15
Rev Ind: 1



SYMBOL ID /O:XL824028-FBR:15.10/0 DATE 91-06-06 09.55

Rev Ind: 1	Revision: AS BUILT	Appd: LS; Year Week: 91 21
=1	33/13,8kV TRANSFORMER BAY T11	DC AUX. VOLTAGE SUPPLY
Design checked by: B NILSSON	Drawing checked by: L SVENSSON	Drawn by: SK
CIRCUIT DIAGRAM	S/S 8501 132/33kV	SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR	Iss by Dept: TDCF	Year Week: 90 36
L 9743.1017	XL 824 028-FBR	Rev Ind: 1; Sheet: 15.10; Cont: 16

+HA.4

(+5)

Q3+ X2
Q3- 1
3
965
Q4+ X3
Q4- 1
3

Q6+ X5
Q6- 1
3
115
B X1
N 1
4

Q3+ X2
Q3- 2
4
115
Q4+ X3
Q4- 2
4

Q6+ X5
Q6- 2
4
668
B X1
N 2
5
33kV AC FAIL X6
668 17

S4+
115.10 S4+
668 S4+ 16

15.10,19,22, S4+
27,28

X3 R+
12 =1R- X3 5 R-
15

R+ 15.10,18,19,21
22,27,28
12 =1_R- R- 15.10,18,
19,26,27,28
16

SUPERV.

TRIP CIRCUIT

-Q1 -Q2 -Q3 -Q4 -Q6

X1 3 6

RH N 16
PH1 N1 16

15.10,19 H+ 22,23,24
15.10,19 H- 22,24

X6 38 37 51+ 22 A
X6 33 32 51+ 15.10 B

X5 5 I+ 15.10,21 19, 22,24
10 I- 15.10,21

15.10 A S4+

MODIFICATION DONE UNDER CONTRACT 516/20/3

LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
INDICATION

MODIFIED

SYMBOL ID /0:XL824028-FBR:15/0 DATE 91-05-31 12.10

2	AS BUILT	LS	91 21	=1 33/13,8kV TRANSFORMER BAY T11 DC AUX. VOLTAGE SUPPLY	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by SK

CIRCUIT DIAGRAM
5/5 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TDCF 90 36

L 9743.1017
XL 824 028-FBR
Row Ind 02 Sheet 15 Cont 15.10

ABB

+HA.4

15

PH

N

PH1

N1

-E125 P

X1 9

-S125

DOOR OPEN

DOOR CLOSED

22

21

-R121

1

2

X1 11

-E125

2

1

-E126

2

1

-B121

θ>

2

1

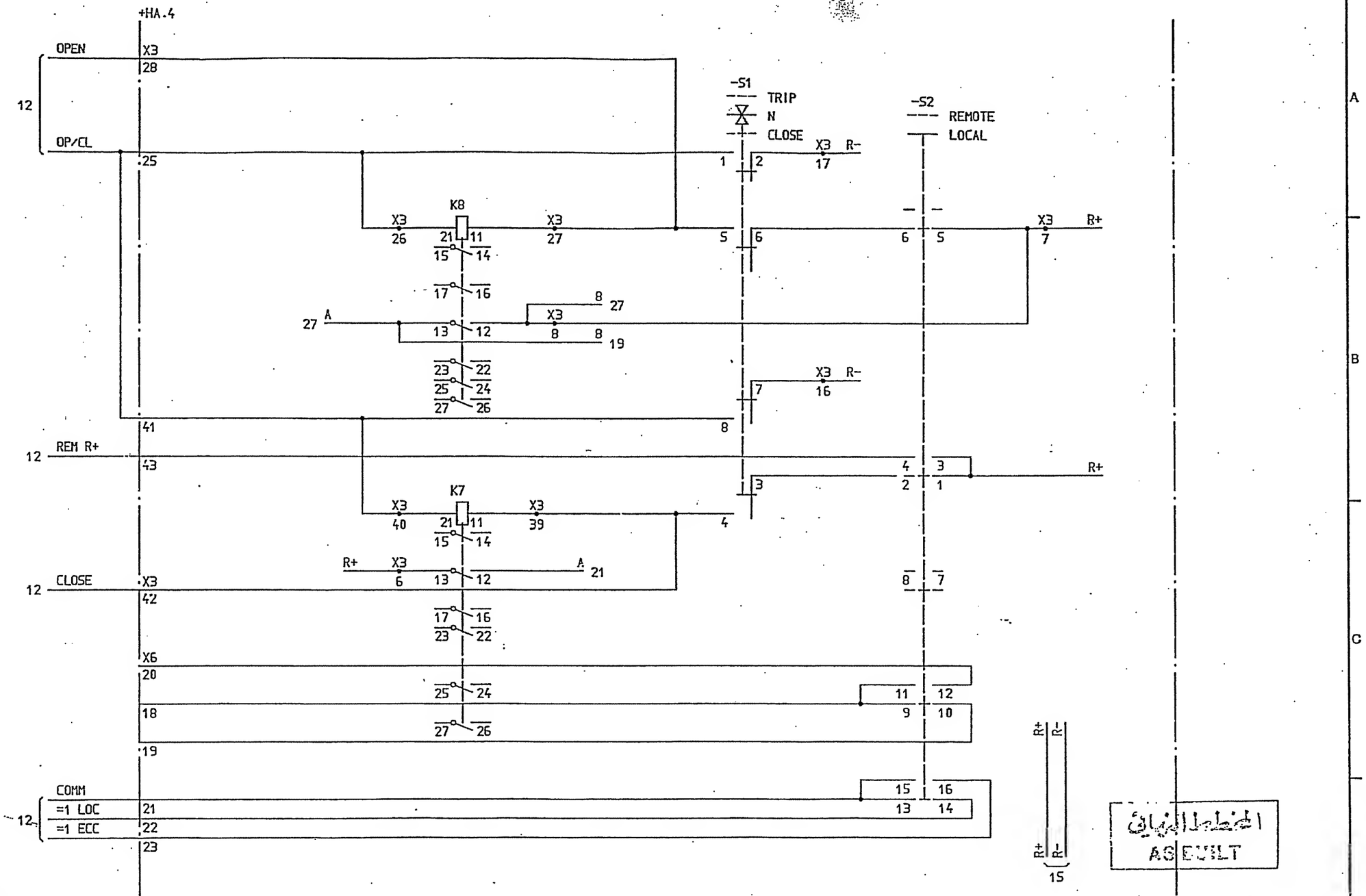
الخطط النهائي

AS BUILT

SYMBOL ID /0:XL824028-FBR:16/0 DATE 91-05-31 12.10

1	AS BUILT	LS	91 21	=1 33/13,8kV TRANSFORMER BAY T11	B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017	Sheet
					L SVENSSON		XL 824 028-FBR	Lang 15
				HEATER AND LIGHT	SK	ABB HV SWITCHGEAR TDCF 90 36		Cont 18

ABB



SYMBOL ID /D:XL824028-FBR:18/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week	=1
2	SCECO SNAG	LS	92 26	33/13,8kV TRANSFORMER BAY T11
1	AS BUILT	LS	91 21	C.8 SELECTOR SWITCHES

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 36

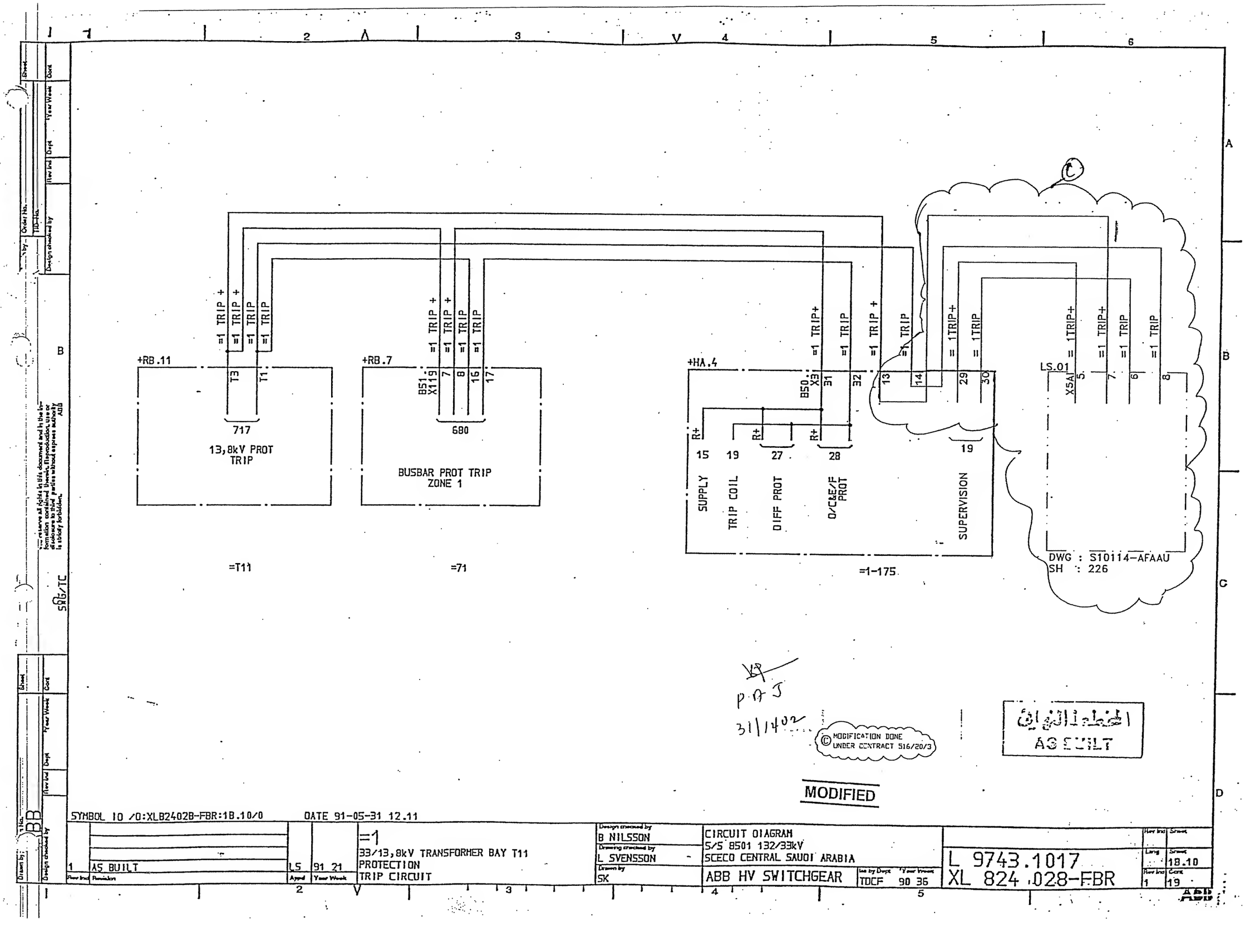
L 9743.1017
XL 824 028-FBR

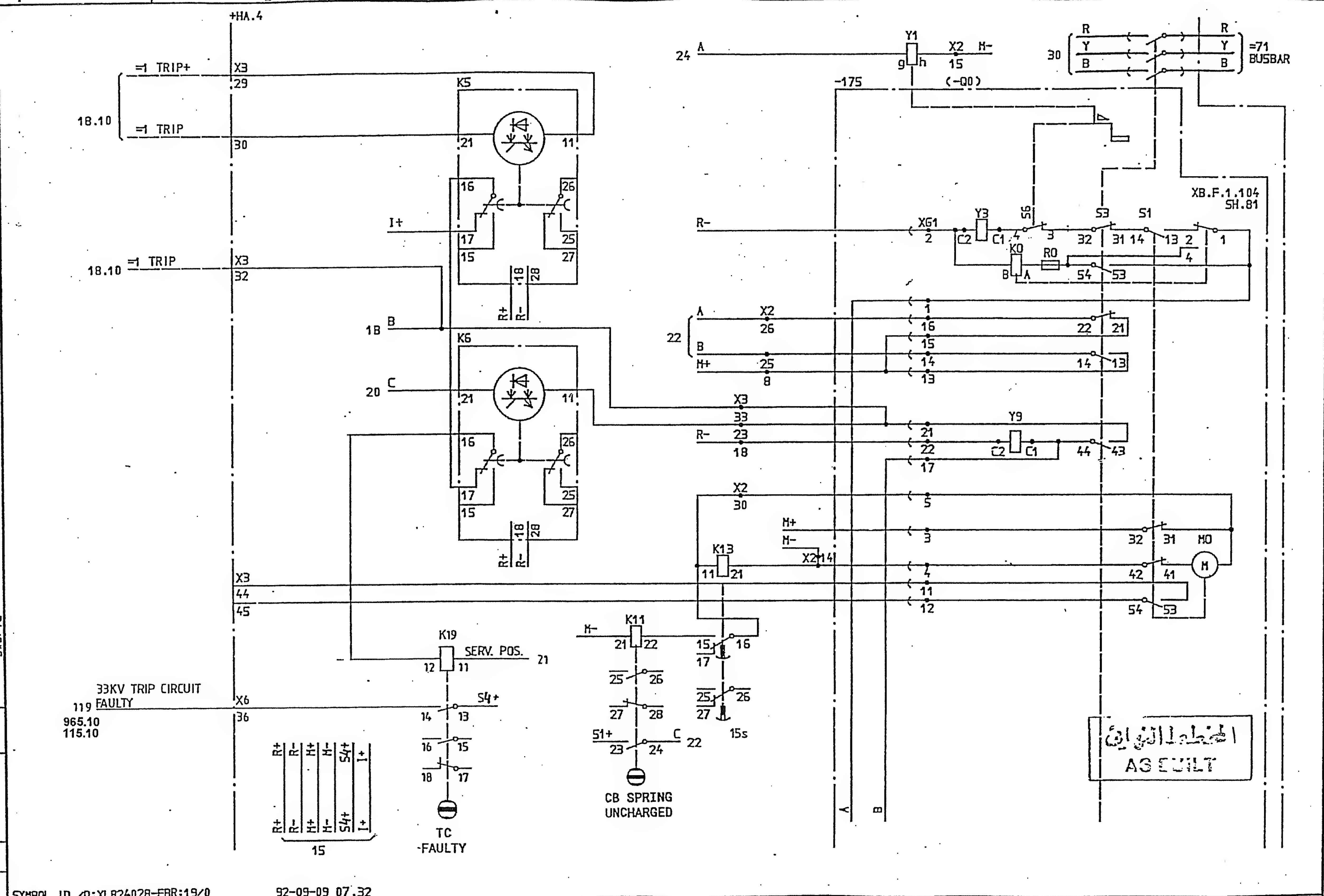
Rev Ind 2 Sheet 18 Lang Sheet Rev Ind 2 Cont 18.10

Drawn by ABB Form No. Checked by

Sheet Cont Year Week Dept Rev Ind Design checked by Drawn by Order No. TIO-No.

SAG/TC


+RB.11
T3
T1
=1 TRIP +
=1 TRIP
717
13,8kV PROT TRIP
=T11
+RB.7
B51 X119
7
8
16
17
=1 TRIP +
=1 TRIP
680
BUSBAR PROT TRIP ZONE 1
=71
+HA.4
B50 X3
31
32
=1 TRIP+
=1 TRIP
R+
15
19
27
28
SUPPLY
TRIP COIL
DIFF PROT
O/C&E/F PROT
13
14
29
30
19
SUPERVISION
=1-175
LS.01
X5A1
5.
7.
6.
8.
=1 TRIP+
=1 TRIP
DWG : S10114-AFAAU
SH : 226
MODIFICATION DONE UNDER CONTRACT 516/20/3
MODIFIED
AS BUILT
SYMBOL ID /0:XLB2402B-FBR:1B.10/0
DATE 91-05-31 12.11
1 AS BUILT
LS 91 21
=1
33/13,8kV TRANSFORMER BAY T11
PROTECTION
TRIP CIRCUIT
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
18.10
19
ABB



SYMBOL ID /D:XL824028-FBR:19/0 92-09-09 07.32

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=1
33/13,8kV TRANSFORMER BAY T11
CIRCUIT BREAKER EQUIPMENT -175

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Resp by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Lang: 19
Rev Ind: 2.1 Cont: 20

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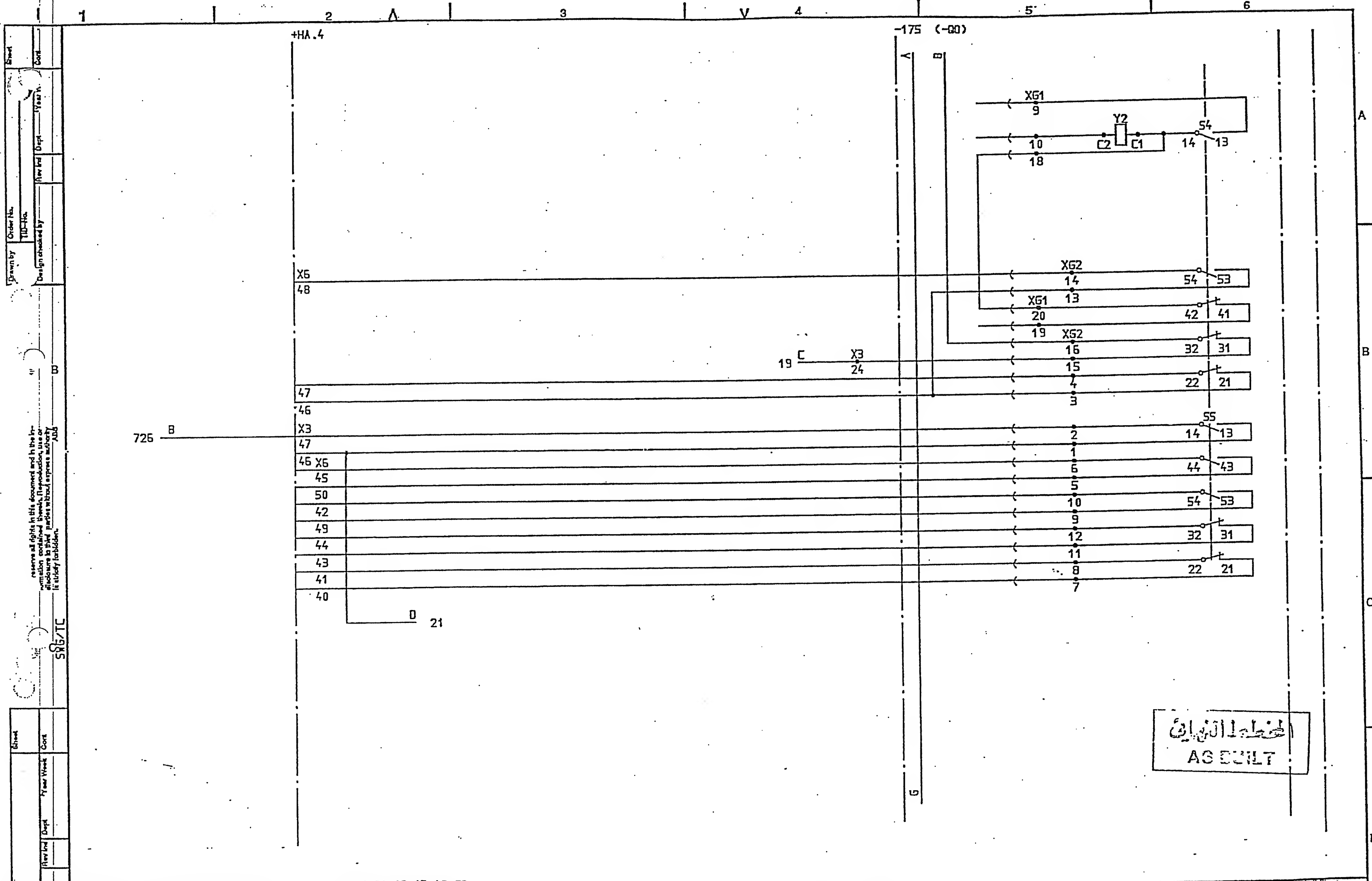


SYMBOL ID /D:XL824028-FBR:20/0

DATE 91-06-13 12.56

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=1

33/13,8kV TRANSFORMER BAY T11

CIRCUIT BREAKER EQUIPMENT -175

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM

S/S 8501 132/33kV

SCECO CENTRAL SAUDI ARABIA

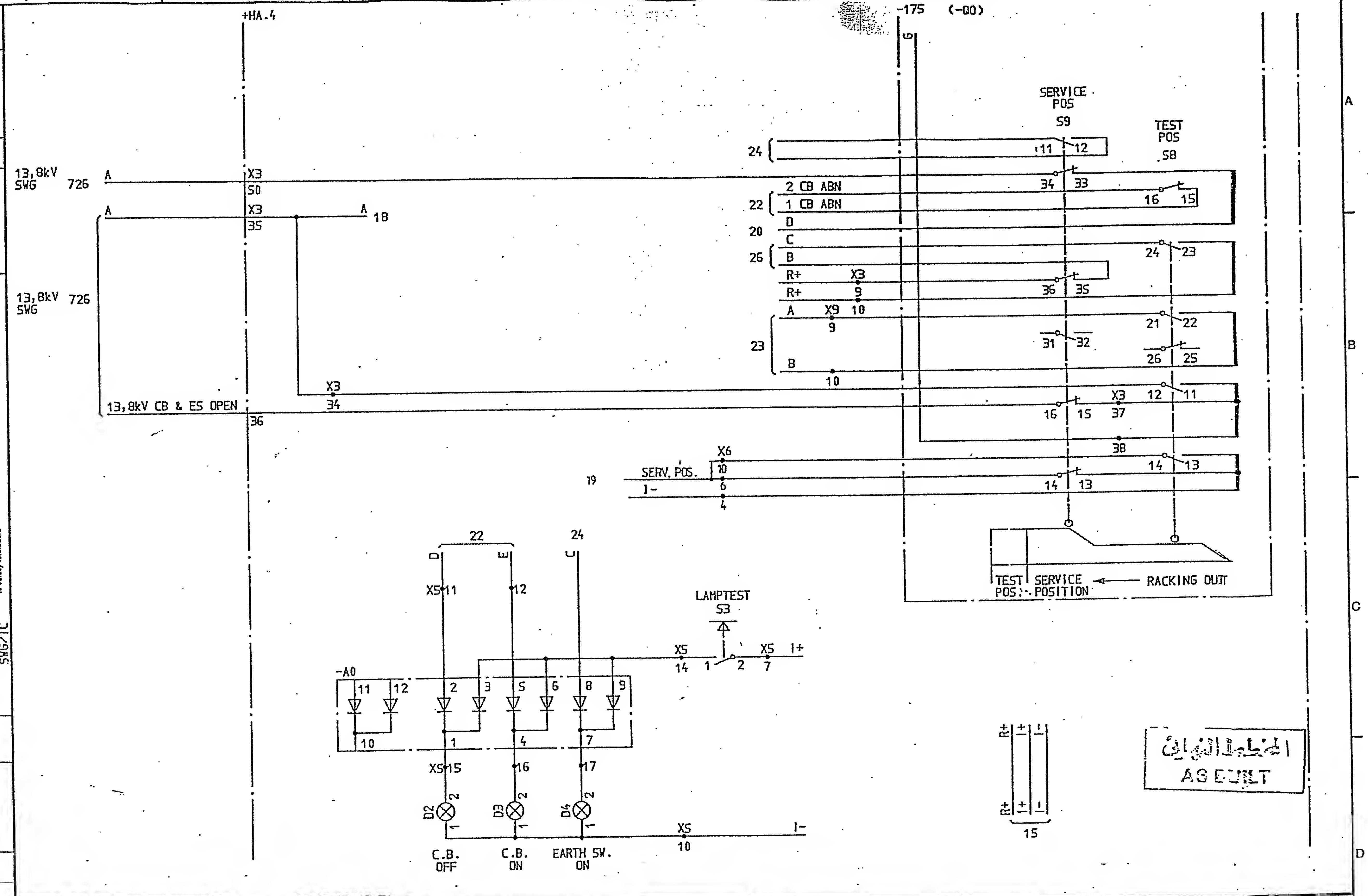
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017

XL 824 028-FBR

Rev Ind: 1 — Sheet: 20 — Cont: 21



SYMBOL ID /D:XL824028-FBR:21/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=1
33/13,8kV TRANSFORMER BAY T11
CIRCUIT BREAKER EQUIPMENT -175

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

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+HA.4

K15
M- X2 17 A2 A1 ON B
32 31
M- A2 A1 OFF A
19

K14
A2 A1

K11
M- X2 18 12 11
54+ 13 14 8 15.10
17 18
15 16
A 15
C 19
21
C8 AUX.
I.R. FAULTY

X2 27
14 13
22 21
44 43
D
54 53
E
54 53
21

X2 M+ 9
14 13
22 21
44 43
X5 I+ 5
54 53

115.10 33kV CB. ABNORMAL
965.10 33kV CB ABNORMAL
X6 39
2 CB ABN
1 CB ABN

X6
2 64 63
3 64 63
OPEN 1
8 74 73
12 CLOSED
COMM 9 74 73
7
32 31
84 83
84 83

M+ M- R+ I+ S4+
M+ M- R+ I+ S4+
15

AS BUILT

SYMBOL ID /D:XL824028-FBR:22/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=1
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T11
				CIRCUIT BREAKER EQUIPMENT -175

Design checked by: 8 NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Ins by Dept TDCF *Year Week 90 36

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ABB
Form No.
Drawn by
Design checked by
Rev Ind
Dept
Year Week
Sheet
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Order No.
TID-No.
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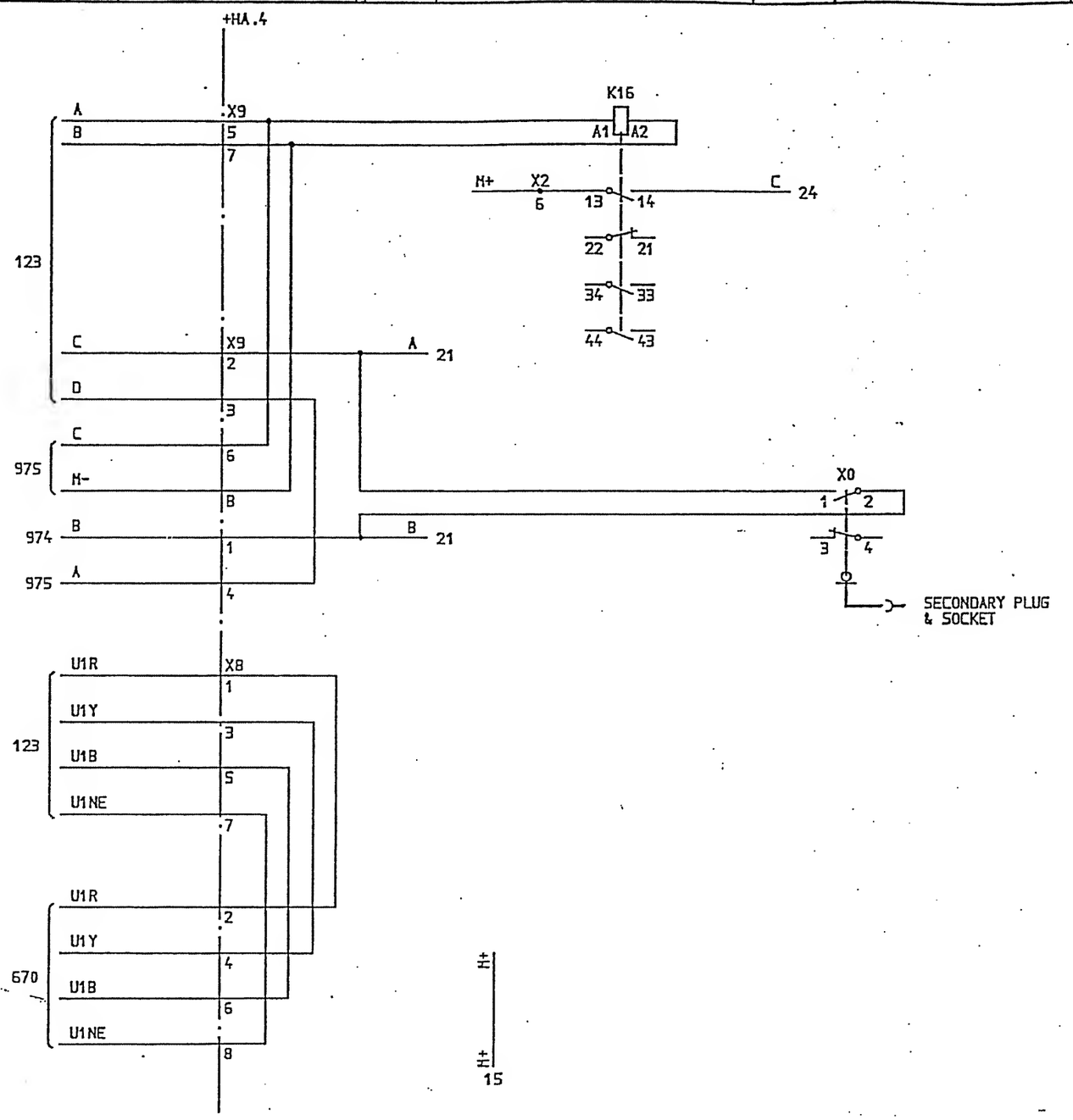
Design checked by
Rev Ind
Dept
Year Week
Sheet
Cont

SNG/TC

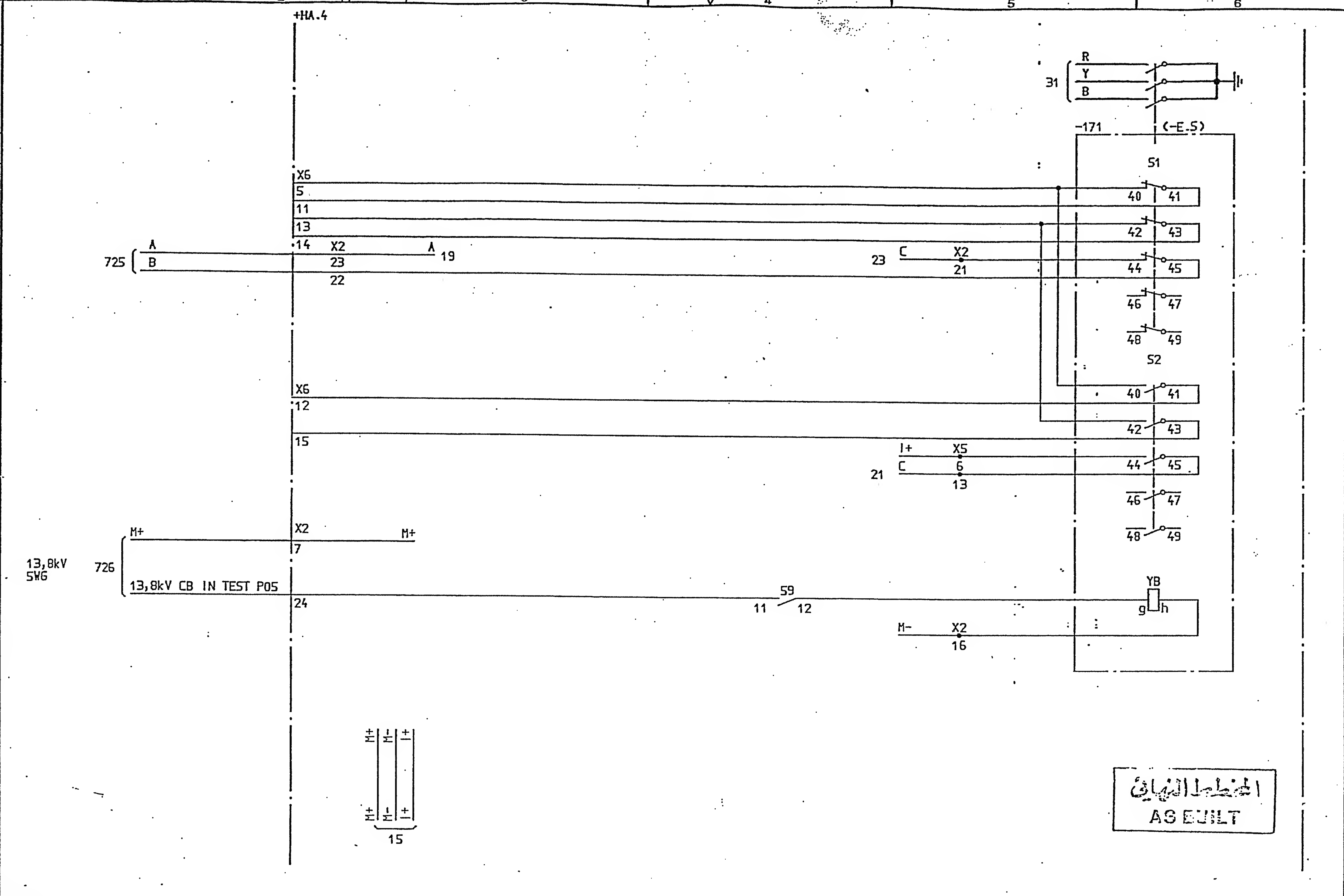


الخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:23/0 DATE 91-06-05 09.58

				=1	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA		Flow Ind. / Sheet
				33/13,8kV TRANSFORMER BAY T11	Drawing checked by L SVENSSON			Lang. / Sheet 23
1	AS BUILT	LS	91 21	INTERLOCKING RELAY FOR C.B. TRUCK	Drawn by SK	ABB HV SWITCHGEAR	Ins by Dept TDCF / Year Week 90 36	L 9743.1017 XL 824 028-FBR / Flow Ind. 1 / Sheet 24
Flow Ind.	Revision	Appd	Year Week					

ABB



SYMBOL ID /D:XL824028-FBR:24/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=1
33/13,8kV TRANSFORMER BAY T11
EARTH SWITCH EQUIPMENT -171

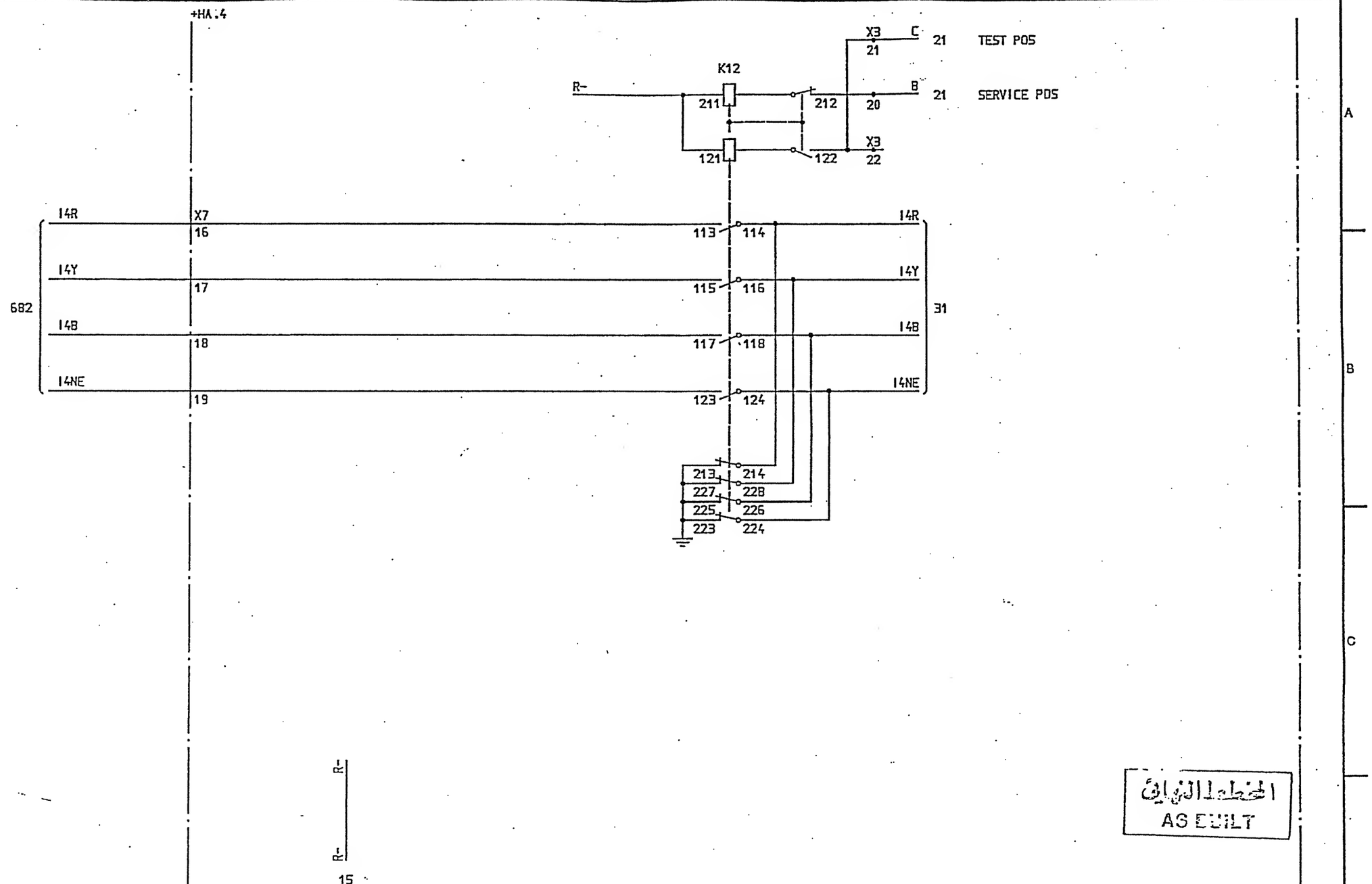
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 24
Rev Ind: 2
Cont: 26



الخطط الزرقاء
AS BUILT

SYMBOL ID /D:XL824028-FBR:26/0 DATE 91-06-06 09.59

1	AS BUILT	LS	91 21	=1	Design checked by B NILSSON	CIRCUIT DIAGRAM		Flow Ind.	Sheet
				33/13,8kV TRANSFORMER BAY T11	Drawing checked by L SVENSSON	S/S 8501 132/33kV	L 9743.1017	Lang.	26
Flow Ind.	Revision	Appd	Year Week	C.T. SHORTING RELAY	Drawn by SK	SCECO CENTRAL SAUDI ARABIA	XL 824 028-FBR	Flow Ind. 1	Cont. 27
						ABB HV SWITCHGEAR — Ins by Dept TDCF Year Week 90 36			

+HA.4

K4 TRANSF DIFF PROT 87T-1
7454 344-CE
RADSB
≥1 | 3Id >> | 3Id/I >

101 17A 16A 15A 131:25 131:15 107:316 107:318

28 C
28 F

K3
R-
21 11
18 8 D 12 13 A 18 28 E
14 15
16 17
R+
22 23
24 25
26 27

K18
R-
22 21
23 24
25 26
27 28
TRIP INDIC.
94 - 1

718 33kV PROT OPER 48 49

+ X3 G 28 28 H

U<

107:116 107:118 107:317 101 2A 131:24 131:116 101 1A 18A

54+ R+ R-

X7
101 3A 8
4A 9
5A 10
6A 5
7A 6
8A 7
9A
10A
11A
12A
13A
14A

T1
X1 1 X1
7 S1 P1 1 I1R
8 S2 2 P2 2 I1Y
9 S1 P1 3 I1B
10 S2 3 P2 4 I1NE
11 S1 P1 5
12 S2 P2 6
30
1/3.79
SINGLE PHASE RATIO

T2
X1 1 X1
7 S1 P1 1
8 S2 2 P2 2
9 S1 P1 3
10 S2 3 P2 4
11 S1 P1 5
12 S2 P2 6
1/6.04
SINGLE PHASE RATIO

=1
-T11

X7 1 I1R
2 I1Y
3 I1B
4 I1NE
725
CT 13,8kV SWG

X7 11 I1N
12 I1NE
746

13 I1N
14 I1NE
715

R+ R- 54+
R+ R- 54+
15

AS BUILT

SYMBOL ID /D:XL824028-FBR:27/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=1
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T11
				TRANSFORMER DIFFERENTIAL PROT

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept TDCF Year Week 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind 2 Sheet 27 Cont 28

ABB

+HA.4

K18
R-
12 11
13 14
15 16
17 18
TRIP INDIC.
94 — 2

K2
21 11
13 12
15 14
17 16

K1
7431 154-AB
O/C&E/F PROT.
RACID
R 5 T
N
I >
I >>
I ⏚>
I ⏚>>
S1:
1 2 3 4 5 6 7 8

101
3A 4A 5A 6A 7A 8A 9A 10A
I2R I2Y I2B I2NE
30

284 33kV PROT OP
178 33kV PROT OP
18.10 =1 TRIP+
705 +
717 HV O/C TRIP

X6 31 27 C
X3 31 32
27 D E
R+ 23 22
51 X6 27 G 25 24 H 27
27 26
30 X3 52

13A 107:126 107:323
17A 16A 51+ 107:313 107:315
107:417 101 1A 18A 2A 107:127 107:124 107:314 107:316 107:318 107:328
54+
R+ R- PE
15.10 A
27 F

R+ R- S4+
R+ R- S4+
15

الخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:28/0 92-07-02 18.51

Rev Ind	Revision		Appd	Year Week	
2	SCECO SNAG		LS	92 26	=1
1	AS BUILT		LS	91 21	33/13,8kV TRANSFORMER BAY T11
					OVERCURRENT PROT 33kV

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM.
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF *Year Week 90 16

L 9743.1017
XL 824 028-FBR

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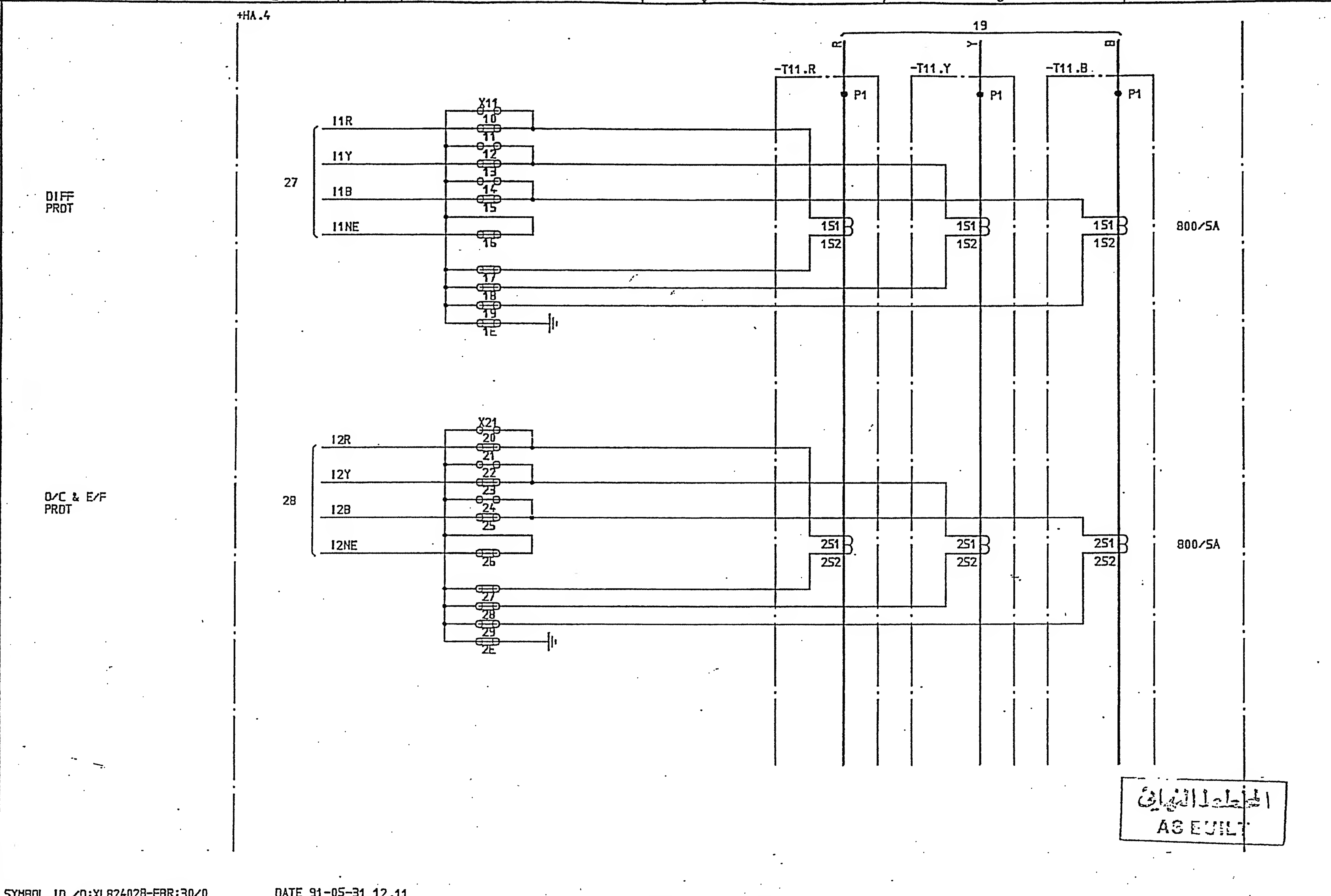
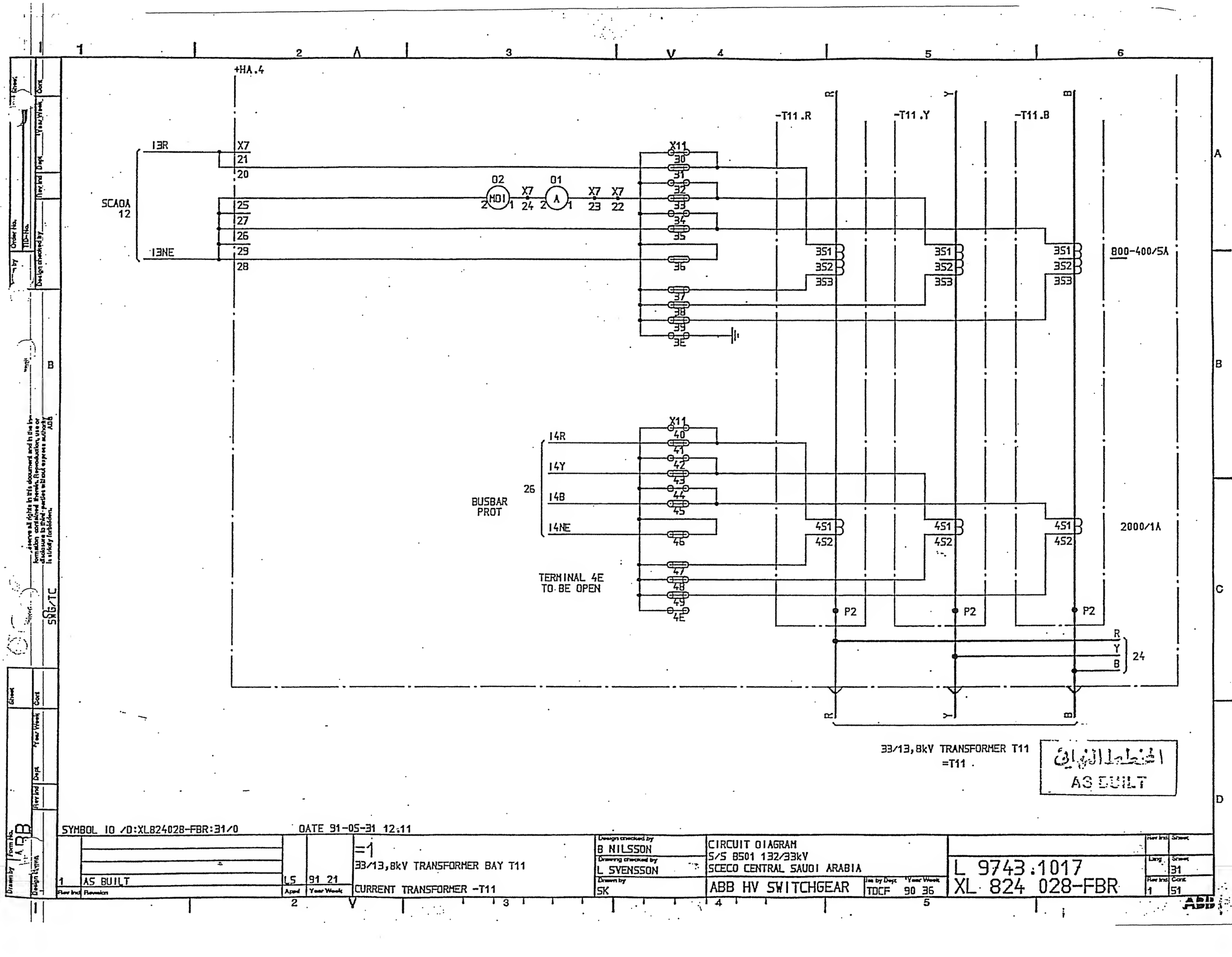


SYMBOL ID /0:XL824028-FBR:30/0 DATE 91-05-31 12.11

1	AS BUILT	LS	91 21	=1 33/13,8kV TRANSFORMER BAY T11 CURRENT TRANSFORMER -T11	Design checked by: B NILSSON Drawing checked by: L SVENSSON Drawn by: SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR · Iss by Dept: TDCF · Year Week: 90 36	L 9743.1017 XL 824 028-FBR Sheet 30 · Cont 31 · Rev Ind 1
Rev Ind	Revision	Appd	Year Week				

ABB


+HA.4
13R
SCADA
12
13NE
X7
21
20
25
27
26
29
28
02
HOI
01
A
X7 24
X7 23
X7 22
X11
30
31
32
33
34
35
36
37
38
39
3E
-T11.R
-T11.Y
-T11.B
351
352
353
800-400/5A
14R
14Y
14B
14NE
26
BUSBAR
PROT
40
41
42
43
44
45
46
47
48
49
4E
TERMINAL 4E
TO BE OPEN
451
452
2000/1A
P2
R
Y
B
24
33/13,8kV TRANSFORMER T11
=T11 .
AS BUILT
SYMBOL ID /D:XL824028-FBR:31/0
DATE 91-05-31 12:11
=1
33/13,8kV TRANSFORMER BAY T11
CURRENT TRANSFORMER -T11
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
1 AS BUILT
LS 91 21
SAG/TC

ITEM	DESIGNATION	SHEET
+RB.3	HEATING AND LIGHTING RELAY CUBICLE	54
	VOLTAGE DISTRIBUTION RELAY CUBICLE	55
+XA.1	SCADA INTERFACE EQUIPMENT	62
+HA.7	AUX. VOLTAGE SUPPLY	65
	HEATING AND LIGHTING	66
	C.B. OPERATION CIRCUITS	68
-275	CIRCUIT BREAKER EQUIPMENT	69
	INTERLOCKING	73
-271	EARTH SWITCH EQUIPMENT	74
	TRIP RELAYS	78
-T11	CURRENT TRANSFORMER	80
+RB.3	DISTANCE PROTECTION	82
	AUTO RECLOSE RELAY	85
	OVERCURRENT AND EARTH FAULT PROT.	87

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:51/0 DATE 91-05-31 12.11

1 AS BUILT LS 91 21

=2
33kV INTERCONNECTION LINE
LIST OF CONTENTS

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR TDCF 90 36

L 9743.1017
XL 824 028-FBR

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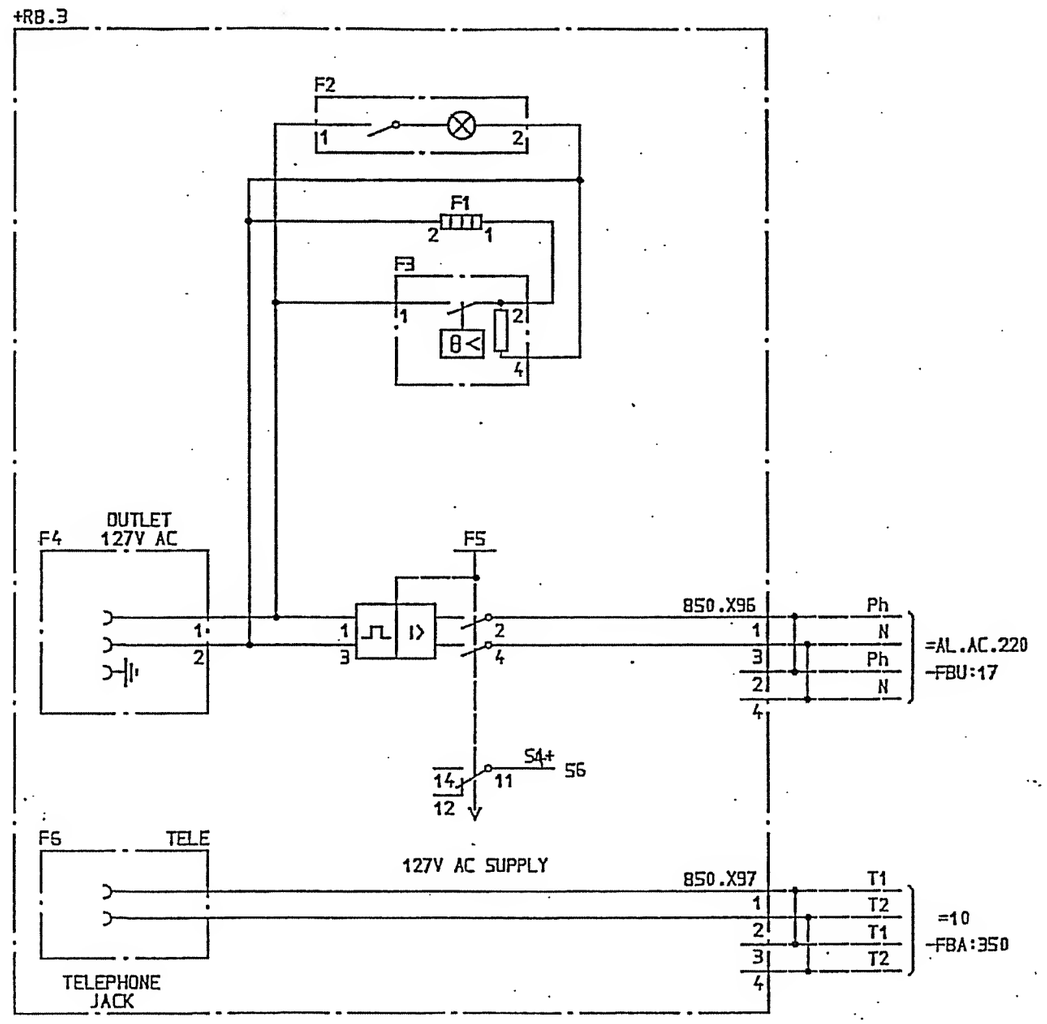
SMG/TC



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:54/0 DATE 91-05-31 12.12

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=2
33kV INTERCONNECTOR LINE
AC AND TELEPHONEJACKET CIRCUITS
VOLTAGE DISTRIBUTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: GH

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ÂRABIA
ABB HV SWITCHGEAR
Ins by Dept TCF Year Week 90 08

L 9743.1017
XL 824 028-FBR

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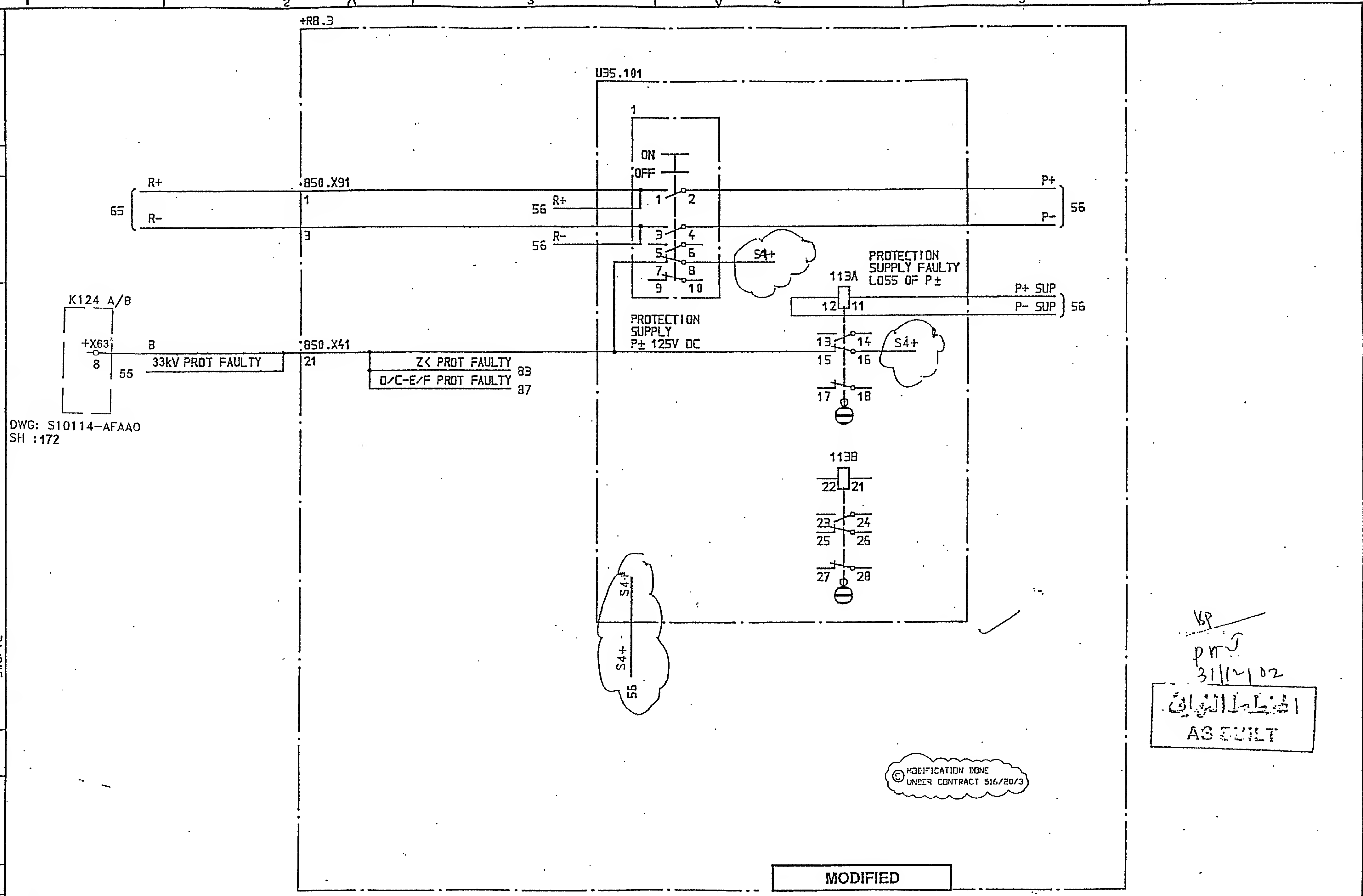
	54
Rev Ind	Cont
1	55

ABB



SYMBOL ID /O:XL824028-FBR:55/0 DATE 91-05-31 12.12

Rev Ind 1	Revision AS BUILT	Appd LS, Year Week 91 21

=2
33kV INTERCONNECTOR LINE
PROTECTION SUPPLY
VOLTAGE DISTRIBUTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Iss by Dept TDCF, Year Week 90 16

L 9743.1017
XL 824 028-FBR

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ABB

SCADA EQUIPMENT

+XA.1

CIRCUIT BREAKER -275

2.X1

1 — CLOSE
2 — REN R+ } 68
3 — R- 56
4
5 — OPEN
6 — DP/CL } 68
7 — R- 65
8

2.X2

1 — OPEN
2 — CLOSED
3 — COMM } 72

ECC/LOC CONTROL SELECTION

2.X2

4 — =2 LOC
5 — =2 ECC
6 — COMM } 68

19 — 13R
20 — 13RNE
21 — 13B } 81
22 — 13BNE

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:62/0 DATE 91-05-31 12.12

Design checked by: B NILSSON	CIRCUIT DIAGRAM				
Drawing checked by: S STRIDSMAN	S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA				
Drawn by: IÅ	ABB HV SWITCHGEAR	Use by Dept: TCF	Year Week: 90 10	L 9743.1017	Sheet: 62
				XL 824 028-FBR	Cont: 65

1 AS BUILT — LS — 91 21

=2
33kV INTERCONNECTOR LINE
SCADA INTERFACE EQUIPMENT

ABB

+HA.7

K9
R+ X3 13 11 12 R-
13 14
S4+ 15 16 B 65
17 18
LOSS OF DC SUPPLY R+/-

K10
H+ X2 10 11 12 X2 19 H-
13 14
S4+ 15 16 B 72
17 18
LOSS OF DC SUPPLY H+/-

965.10 33kV PROT FAULTY X6
165.10 33kV PROT FAULTY 34

K9
21 22
23 24
25 26
27 28
SPARE

K10
I+ X5 8 21 22 X5 18 I-
23 24
S4+ X6 24 25 26 A 65
27 28
LOSS OF DC SUPPLY I+/-

33kV OC FAIL X6
33kV OC FAIL 25

R+ R- H+ H- I+ I- S4+
R+ R- H+ H- I+ I- S4+
65

المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:65.10/0 DATE 91-05-31 12.12

Drawn by SK	Form No. BB	1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE OC AUX. VOLTAGE SUPPLY	Design checked by B NILSSON Drawing checked by L SVENSSON Drawn by SK
		Rev Ind	Revision	Appd	Year Week		

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Ins by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

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Lang Sheet Cont 65

ABB

SYS-2
DC DB-9
XQB4-5
SH=19
DC DB-9
XQB4-1
SH=19
DWG:N101369-UFAB
+HA.7
(+5)
Q3+ X2
Q3- 1
3
Q4+ X3
Q4- 1
3
Q6+ X5
Q6- 1
3
965
B X1
N 1
4
Q3+ X2
Q3- 2
4
165
Q4+ X3
Q4- 2
4
Q6+ X5
Q6- 2
4
165
B X1
N 12
5
33kV AC FAIL X6
965.10 17
33kV AC FAIL
165 S4+
965.10 16
165 S4+
65.10,69,72,73 S4+
55 R+ X3
R- 5
15
56 R+ R+ 65.10,68,69,71
62 R- 6 R- 72
16 65.10,68, 69,76
TRIP CIRCUIT
-Q1 -Q2 -Q3 -Q4 -Q6
1 3
I>
2 4 12 11
PH N
66
PH1 N1
66
X1 7 8
X1 9 10
X2 5 13
65.10,69 72,73,74
65.10,69 72,74
B 73
X6 38 37
X6 33 32
A 72 S4+
B 65.10 S4+
A 65.10 S4+
X5 5 10
65.10,71 69,72,74
65.10,71
I+
I-
SUPERV.
LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
INDICATION
© MODIFICATION DONE UNDER CONTRACT 516/20/3
MODIFIED
31/12/92
AS BUILT
SYMBOL ID /0:XL824028-F8R:65/0
DATE 91-05-31 12.12
=2
33kV INTERCONNECTOR LINE
DC AUX. VOLTAGE SUPPLY
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
Sheet 65
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Rev Ind 02

+HA.7

65

PH

N

PH1

N1

-E125 P

X1 9

DOOR OPEN

DOOR CLOSED

-S125

21

22

-R121

1

2

X1 11

-E125

2

1

-E126

2

1

-B121

θ>

2

1

الخطط النهائي

AS BUILT

SYMBOL ID /D:XL824028-FBR:66/0 DATE 91-05-31 12.12

1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE HEATER AND LIGHT	Design checked by B NILSSON; Drawing executed by L SVENSSON; Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	Use by Dept TDCF; Year Week 90 36	L 9743.1017 XL 824 028-FBR; Row Ind 1; Sheet 66; Cont 68
Row Ind	Revisions	Appd	Year Week					

+HA.7

OPEN — X3 28 — 62

OP/CL — X3 25

REM R+ — 62 — 48

LINE CHECK — 82 — X3 40

P+ — 56 — 50

49

CLOSE — 62 — X3

BLOCK A-R — 85 — 42

51

41

X6 20

18

19

COMM — 62 — =2 LOC 21 — =2 ECC 22 — 23

K8: X3 26 — 21 11 — X3 27; 15 14; 17 16; 13 12; 23 22; 25 24; 27 26

K7: X3 40 — 21 11 — X3 39; 15 14; R+ X3 7; 13 12; 17 16; 23 22; 25 24; 27 26

78 A — B 78 — X3 9 — B 69

8

4

-51 TRIP / N / CLOSE — X3 R- 18 — 1 — 2

5 — 6

7 — X3 R- 17

3

-S2 REMOTE / LOCAL

8 6 — 7 5 — X3 8 — R+

4 3 — 2 1 — R+

11 12 — 9 10

15 16 — 13 14

R+ R- — R+ R- — 65

A'S BUILT

SYMBOL IO /O:XL824028-FBR:68/0 92-07-02 18.51

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=2 33kV INTERCONNECTOR LINE
1	AS BUILT	LS	91 21	C.B SELECTOR SWITCHES

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Iss by Dept TDCF — Year Week 90 36

L 9743.1017
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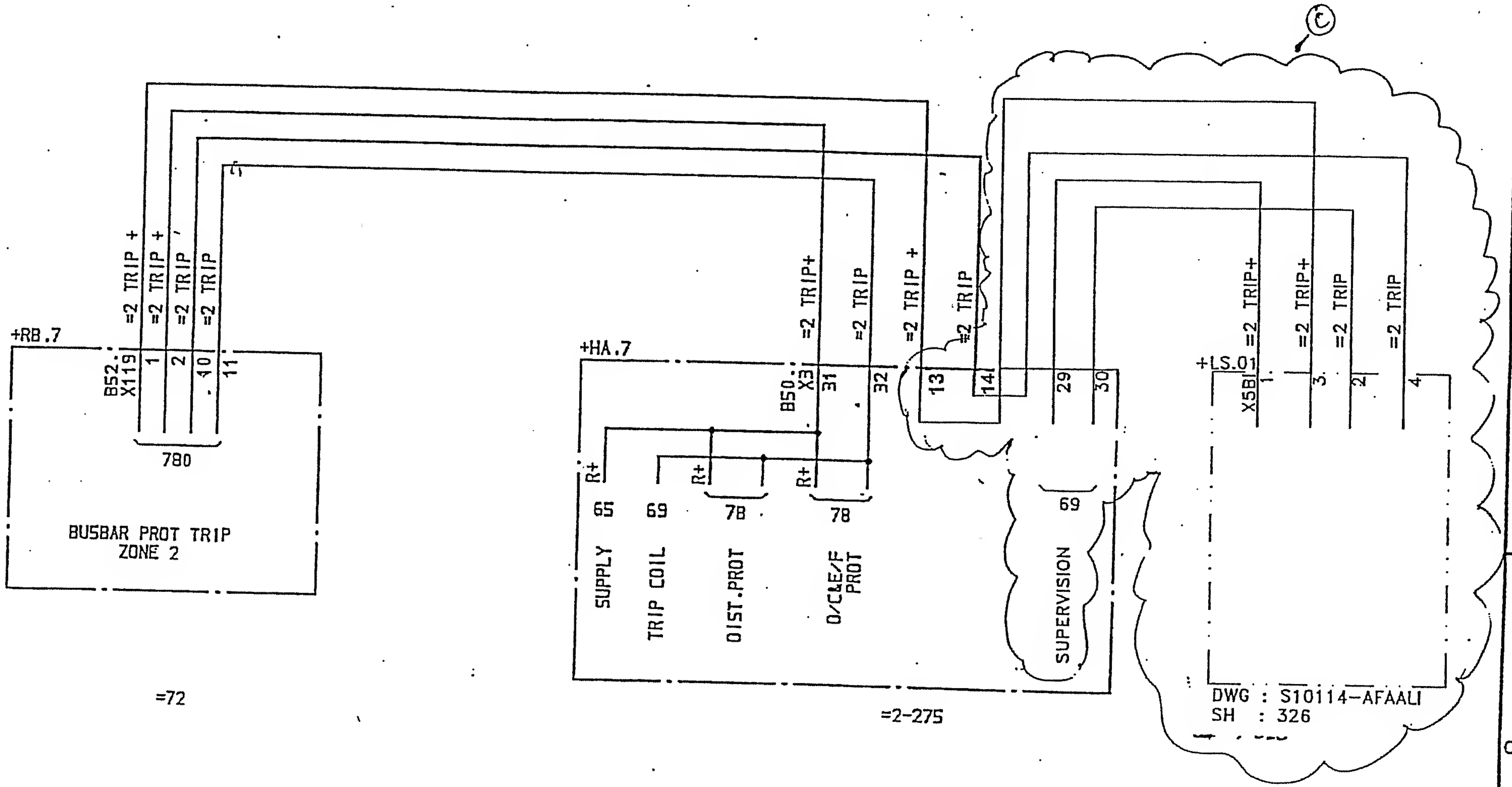

Ⓒ MODIFICATION DONE UNDER CONTRACT 516/20/3

المخطط النهائي
AS BUILT

MODIFIED

SYMBOL ID /0:XL824028-FBR:68.10/0 DATE 91-05-31 12.12

1	AS BUILT	LS 91 21
Rev Ind	Revision	Appd / Year Week

=2
33kV INTERCONNECTOR LINE PROTECTION
TRIP CIRCUIT

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Iss by Dept TDCF, Year Week 90 36

L 9743.1017
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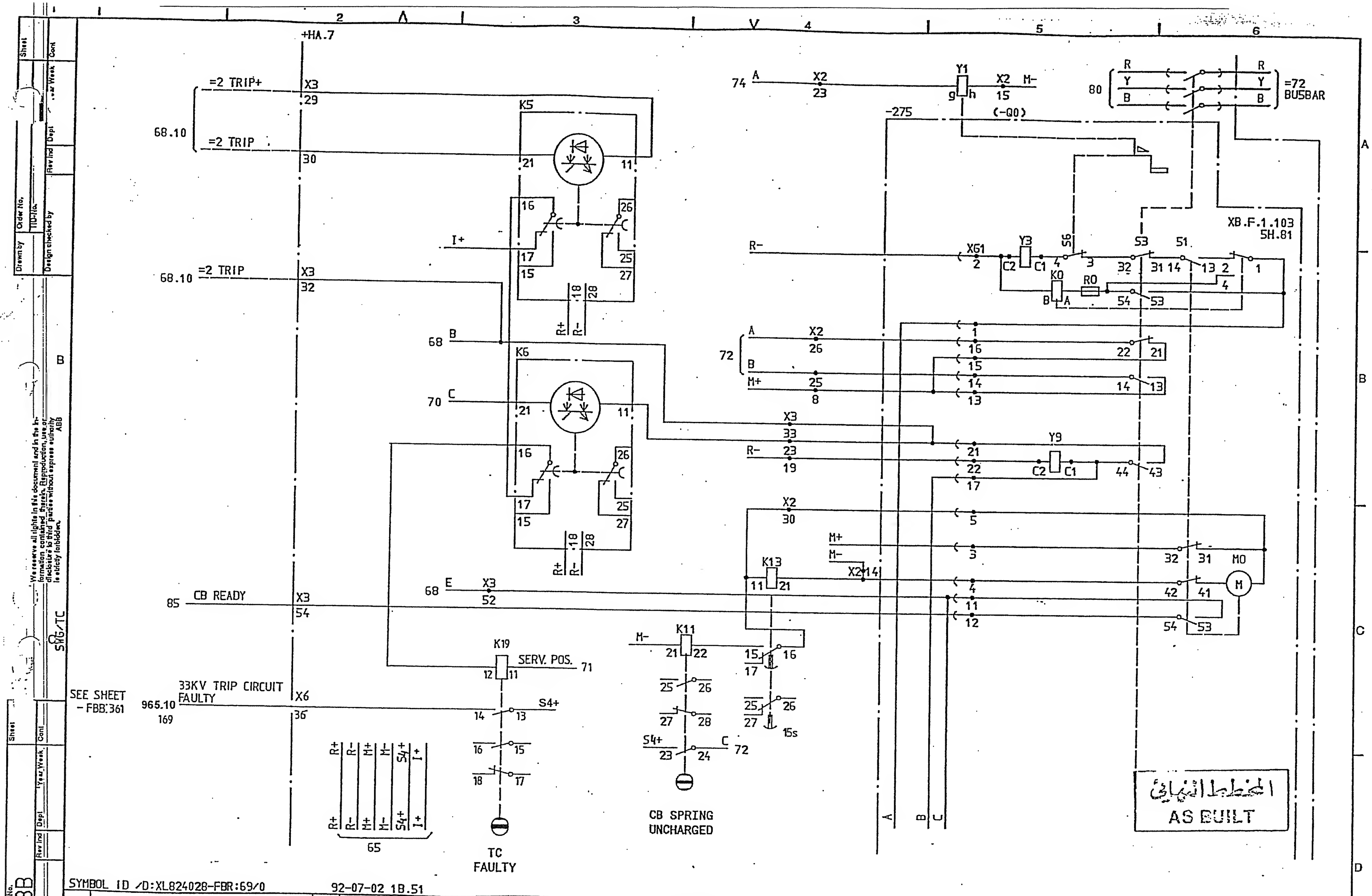
SRG/TC



2.1	SCECO SNAG	LS	92 26	
1	AS BUILT	LS	91 21	
Rev Ind	Revision	Appd	Year Week	

=2

33kV INTERCONNECTOR LINE

CIRCUIT BREAKER EQUIPMENT -275

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM

S/S 8501 132/33kV

SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017

XL 824 028-FBR

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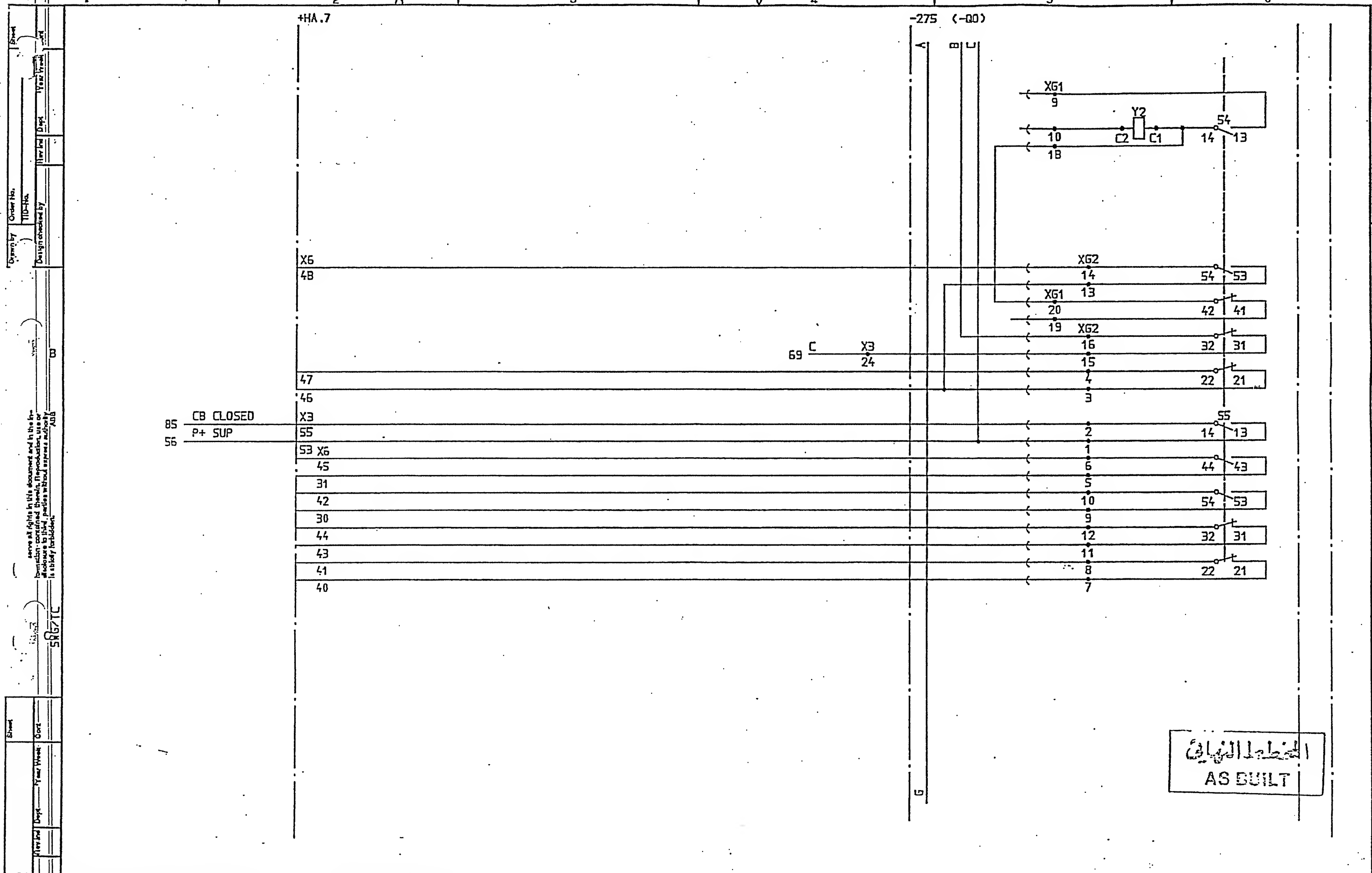

SYMBOL ID /D:XL824028-FBR:70/0 DATE 91-05-31 12.12

1 AS BUILT	LS	91 21
Rev Ind Revision	Appd	Year Week

=2
33kV INTERCONNECTOR LINE →
CIRCUIT BREAKER EQUIPMENT -275

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Iss by Dept TDCF — Year Week 90 36

L 9743.1017
XL 824 028-FBR

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+HA.7

-275 (-QO)

A 68

X3 34

85 A-R CLOSE X3 43

72 2CB ABN / 1CB ABN

76 C / B / R+ X3 / R+ 10

73 A X9 11 / 9 ; B / 10

35 / 36

SERVICE POS S9 — 34 33

TEST POS S8 — 16 15

24 23

36 35

22 21

31 32

26 25

X3 12 11 3B

16 15 X3 37

69 SERV.POS. X6 10

I- 6 / 4

14 13

11 12

TEST POS. SERVICE POSITION ← RACKING OUT

72 74

D E C

X5 11 12

-A0

11 12 2 3 5 6 8 9

10 1 4 7

X5 15 16 17

D2 D3 D4

C.B. OFF / C.B. ON / EARTH SW. ON

X5 10 I-

LAMPTEST S3

X5 14 1 2 7 I+

R+ + - / R+ + - / 6S

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:71/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week	
2.1	SCECO SNAG	LS	92 26	=2 33kV INTERCONNECTOR LINE
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -275

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 36

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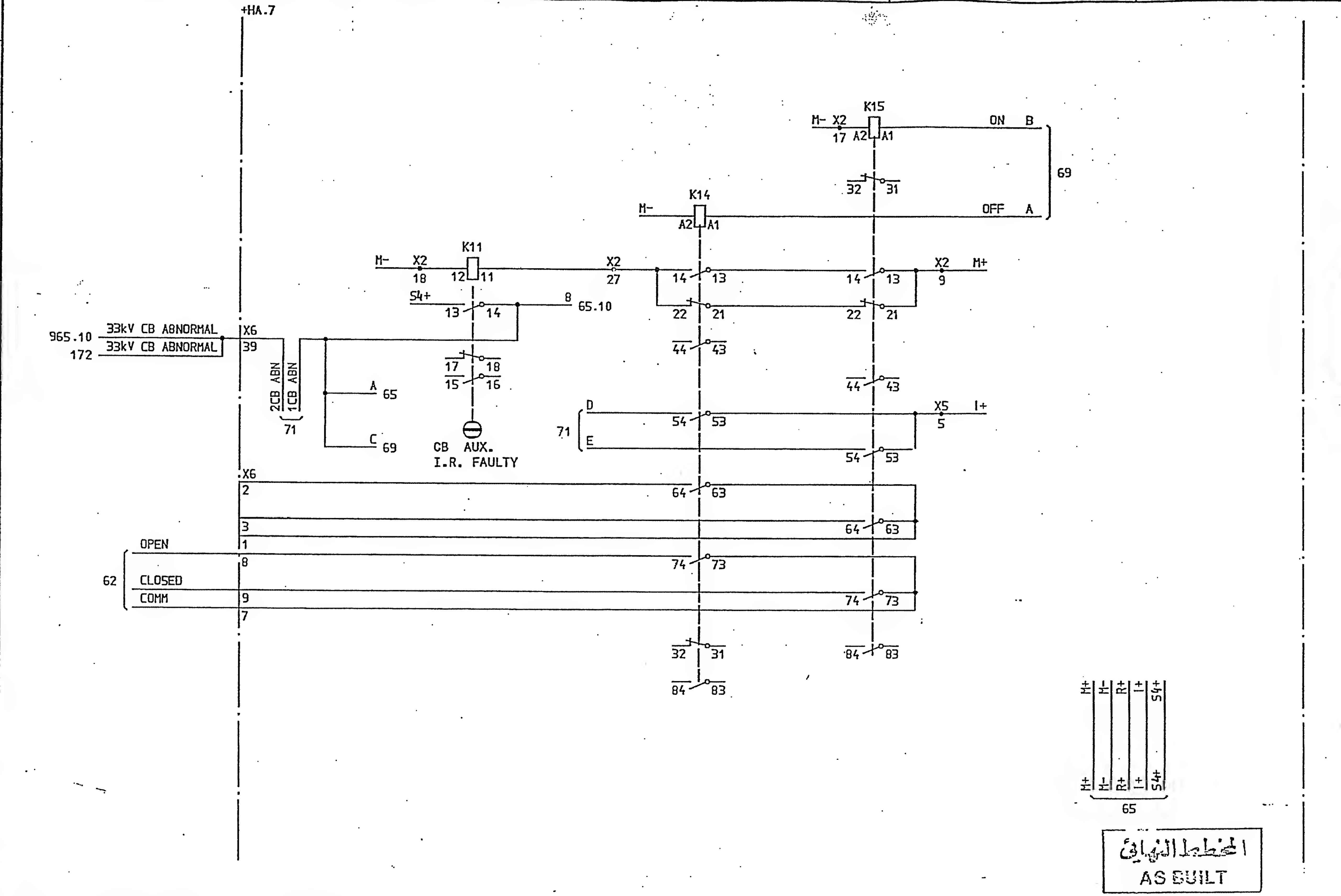
Rev Ind 2.1 | Sheet 72 | Cont | Lang | Sheet 71

ABB



SYMBOL ID /D:XL824028-FBR:72/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=2
33kV INTERCONNECTOR LINE
CIRCUIT BREAKER EQUIPMENT -275

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

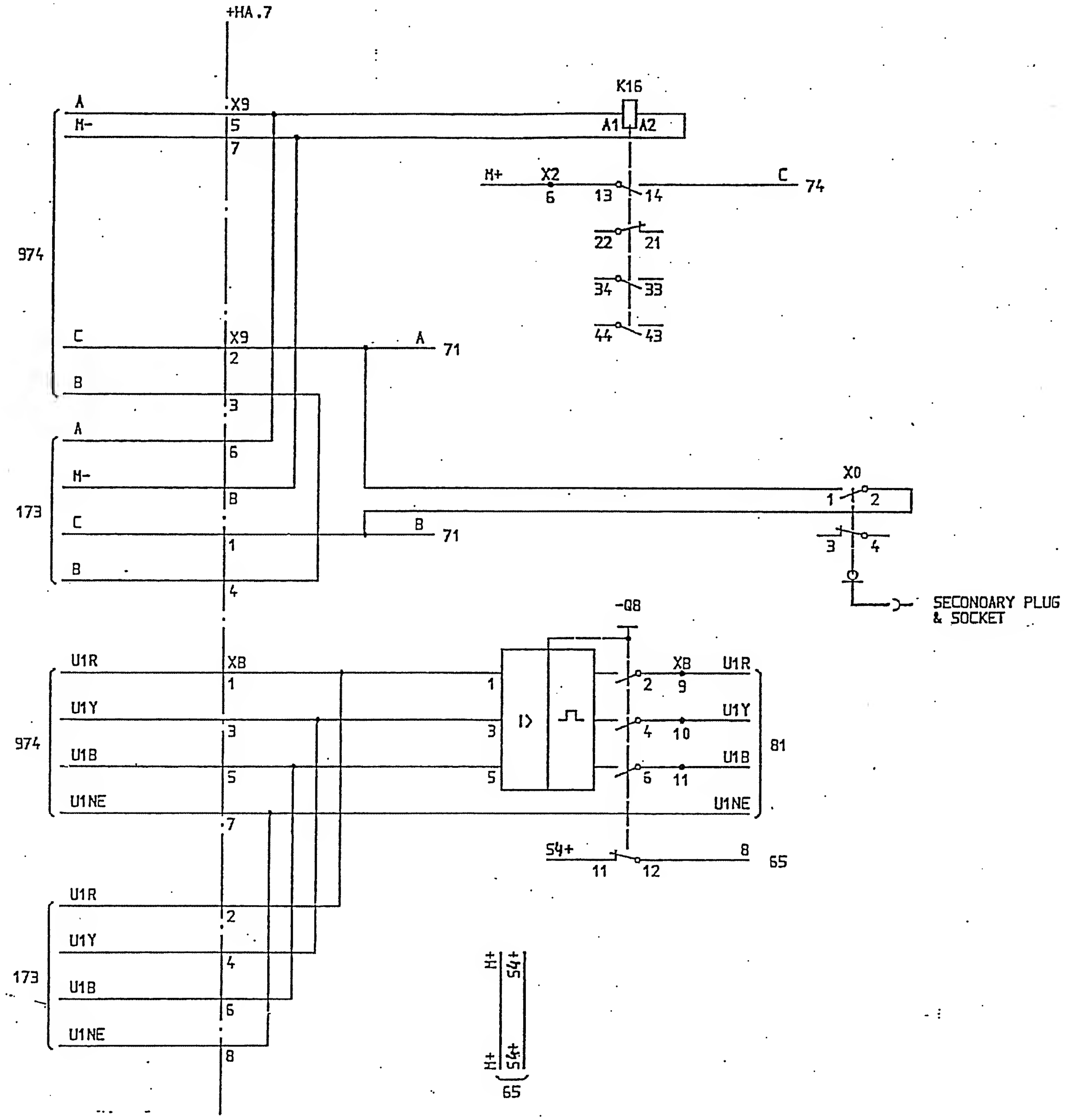
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF. Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 Sheet: 72 Cont: 73

SNG/TC



المخطط النهائي
AS BUILT

SYMBOL ID /D:XLB2402B-FBR:73/0 DATE 91-06-06 10.02

Rev Ind	Revision	Appd	Year Week		Design checked by / Drawing checked by / Drawn by			
1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE INTERLOCKING RELAY FOR C.B. TRUCK	B NILSSON L SVENSSON SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	TDCF 90 36	L 9743.1017 XL 824 028-FBR

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SRG/TC

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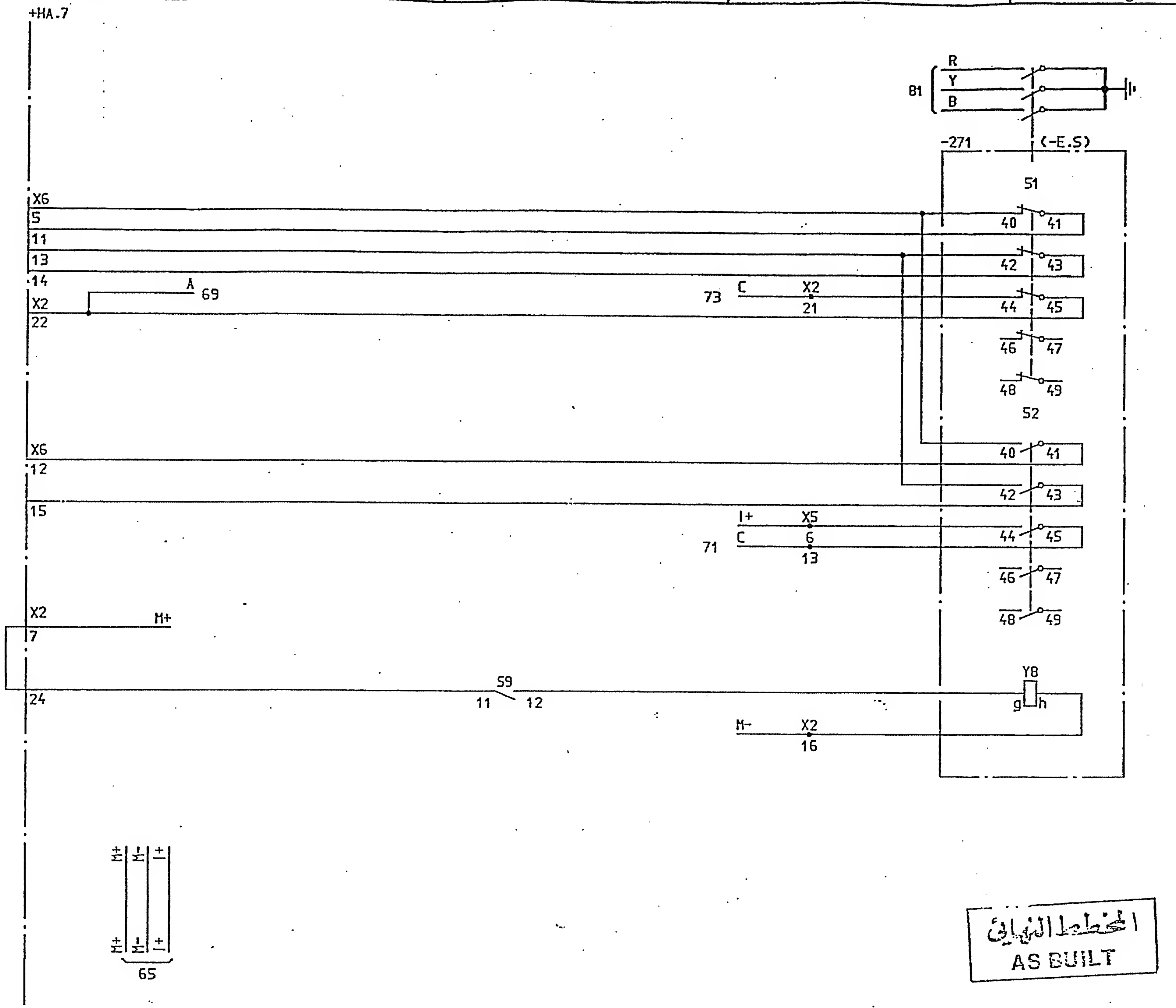


المخطط النهائي
AS BUILT

SNG/TC

SYMBOL ID /D:XL824028-FBR:74/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=2
33kV INTERCONNECTOR LINE
EARTH SWITCH EQUIPMENT -271

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2
Sheet: 74
Cont: 76

+HA.7

BUS DIFF

X3 C 71 TEST POS

22

K12

R- 211 212 B 71 SERVICE POS

20

121 122

14R X7 16 113 114 14R

14Y 17 115 116 14Y

782 14B 18 117 118 14B 81

14NE 19 123 124 14NE

213 214

227 228

225 226

223 224

R-

R-

65

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:76/0 DATE 91-05-31 12.13

1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE	
				C.T. SHORTING RELAY	

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Doc by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Flow Ind 1 Cont 78
Lang Sheet 76

ABB

+HA.7

DIST. PROT

83 MAIN PROT TRIP — X3 44

TRIP INDIC.
94 - 1

56 P- — 45

K18
12 11
13 14
15 16
17 18

K2
21 11

68.10 =2TRIP+ — X3 31

13 12
15 14
17 16
23 22
25 24
27 26

32

68 P+

O/C&E/F PROT

87 BACK-UP PROT TRIP — X3 46

K3
21 11

68 A — 8 68

13 12
15 14
17 16
23 22
25 24
27 26

68 P+

K18
22 21
23 24
25 26
27 28

56 P-SUP — 47

TRIP INDIC.
94 - BU

SAS/TIC

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:78/0 92-09-09 07.32

2	SCECO SNA6	LS	92 26	=2	33kV INTERCONNECTOR LINE
1	AS BUILT	LS	91 21		TRIP RELAYS 33kV
Mary Ind	Revision	Appd	Year Week		

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Made by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Mary Ind: 2 — Sheet: 78 — Cont: 80

+HA.7

DIST.PROT
E/F PROT
82
I1R
I1Y
I1B
I1NE

X11
10
11
12
13
14
15
16
17
18
19
1E

-T11.R
-T11.Y
-T11.B
P1
69
R
Y
B
151
152
800/5A

O/C&E/F
PROT
87
I2R
I2Y
I2B
I2NE

X21
20
21
22
23
24
25
26
27
28
29
2E

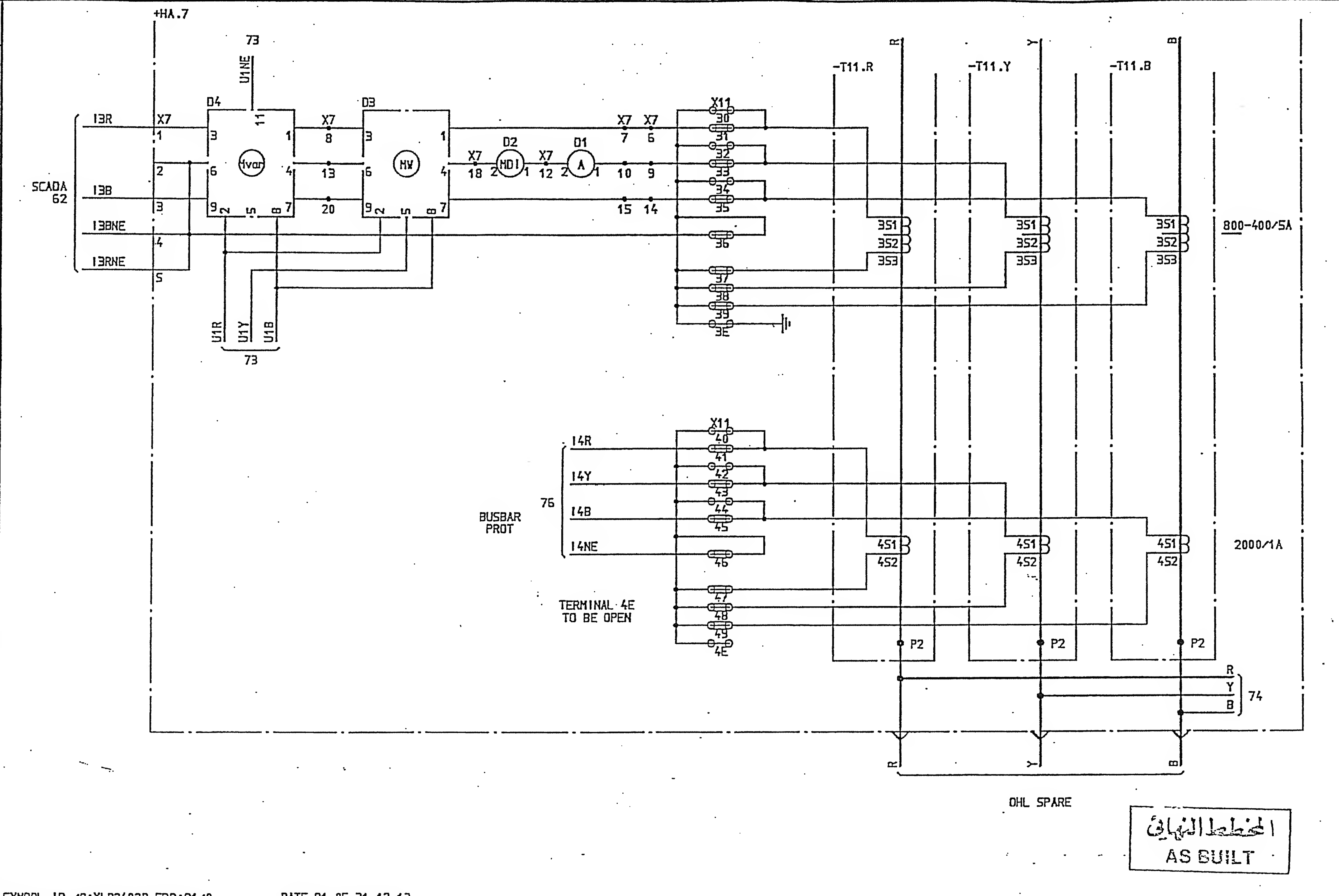
251
252
800/5A

الخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:80/0 DATE 91-06-06 10.03

1	AS BUILT	L5	91 21	=2 33kV INTERCONNECTOR LINE	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA		Flow Ind. / Sheet
					Drawing checked by L SVENSSON			Lang. / Sheet 80
Flow Ind.	Revision	Appd	Year Week	CURRENT TRANSFORMER -T11	Drawn by SK	ABB HV SWITCHGEAR	Des by Dept. TDCF / Year Week 90 36	L 9743.1017 XL 824 028-FBR / Flow Ind. 1 / Cont. 81

ABB



SYMBOL ID /0:XL824028-FBR:81/0

DATE 91-05-31 12.13

1	AS BUILT	L5	91 21	=2 33kV INTERCONNECTOR LINE CURRENT TRANSFORMER -T11	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA
Rev Ind	Revision	Appd	Year Week			ABB HV SWITCHGEAR TDCF 90 36

L 9743.1017

XL 824 028-FBR

Rev Ind 1 · Sheet 81 · Cont 82

+RB.3

U9.101
7433 1457-AC

RELZ 100

134
402 B10 — BL2
402 Z10 — SOTF
402 Z12 — PREP 3Φ
402 D10 — DISC OPEN
402 B08 — RESET IND
402 Z08 — BL3
402 Z06 — CR2
402 B06 — CR1
402 Z04 — CR3
402 B04 — CR4
402 D04 — CR5
402 Z01 — CR6
402 B01 — CR7
402 Z02 — CR8
402 D01 — CR9

B5 307 LINE CHECK 53 51
6B LINE CHECK B50.X113 23

P- X22 4 B5
RL- B3
A/D SIGNALS B3

101
3A — B50.X111 11 — I1R
4A — 12 — I1Y
5A — 13 — I1B
6A — 14 — I1NE
B0 =2 -T11

120:402 131
120:402 141

101
7A — 850.X112 11 — U2R
8A — 12 — U2Y
9A — 13 — U2B
10A — 14 — U2NE
770 =72 -T36

U15.131
11A — 21 11 28 18 — U1ΔNE
12A — 51 — U1ΔN
△ -WINDING
52
771 =72 -T36

120:410 B10
120:410 Z11

P- 56

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL82402B-FBR:B2/0 DATE 91-06-06 10.04

1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE DISTANCE PROTECTION	B NILSSON / J SKOVGAARD / IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TDCF 90 15	L 9743.1017 XL 824 028-FBR Sheet 82 Cont. 83
Rev Ind	Revision	Appd	Year Week		Design checked by / Drawing checked by / Drawn by		

ABB

+R8.3

U9.101

770 VT MCB TRIPPED — 850.X113 28

78 MAIN PROT TRIP — 850.X113 27

85 START A-R

55 Z< PROT FAULT

84 VTS

153:402 Z01

153:402 Z05

153:402 Z06

101:14A

153:402 Z11

148:X3

148:402

101:13A

153:402 D06

101:15A

101:16A

101:17A

153:402 D08

153:402 D01

153:402 D04

153:402 D11

153:402 D10

153:402 Z10

RL- 82

A/D SIGNALS 82

BL1

CRG

CR

t5

TRIP(R)

TRIP(S)

TRIP(T)

GEN TRIP

GEN START

START/BLOCK AR

Z< FAILURE

≥ 1

U<

SIGNALS TO OPTIONAL OUTPUT RELAY UNIT

153:402 B10

153:402 B11

153:402 B04

153:402 B01

101:2B

101:2A

101:1A

101:18A

153:402 B09

153:402 B13

S01:11

S01:13

153:402 D12

153:402 B12

84 S+

85 S-

B4

S1+ S1- P+ P- 56

85

Z<

FUNCTIONS TO BE SET UNDER "CONF."

SP1

1 0

PS8

PH SEL

SOTF

WEI

VTS

SP2

1 0

DIR

POR

8L

المخطط النهائي
AS BUILT

EXISTING TO BE MODIFIED

SYMBOL ID /D:XL824028-F8R:83/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=2 33kV INTERCONNECTOR LINE

DISTANCE PROTECTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

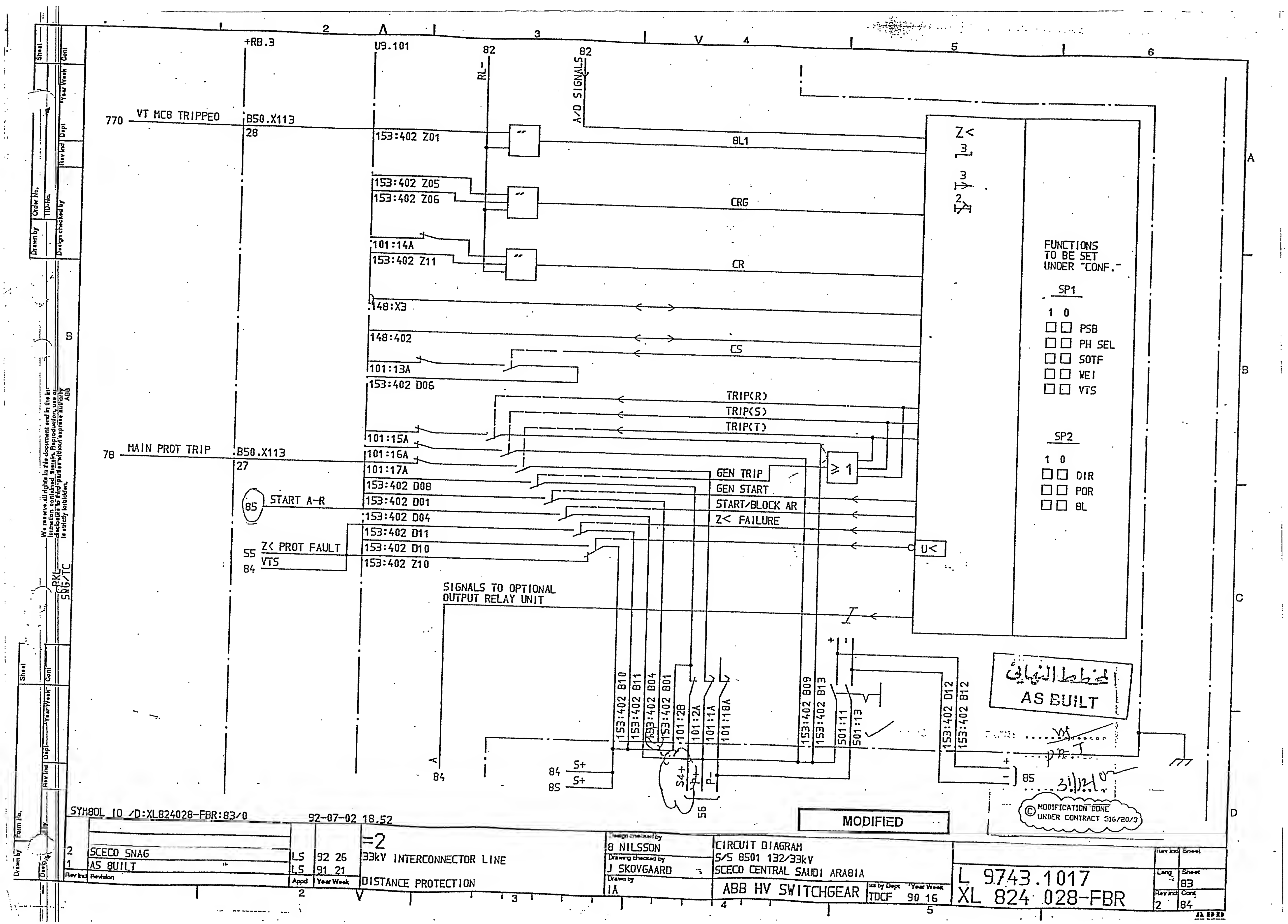
CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR — Dept: TDCF — Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 — Sheet: 84 — Lang: — Sheet: 83

ABB



+RB.3
U9.101
82
RL-
A/D SIGNALS
770
VT MCB TRIPPED
B50.X113
28
153:402 Z01
8L1
153:402 Z05
153:402 Z06
CRG
101:14A
153:402 Z11
CR
148:X3
148:402
CS
101:13A
153:402 D06
TRIP(R)
TRIP(S)
TRIP(T)
101:15A
101:16A
101:17A
78
MAIN PROT TRIP
B50.X113
27
GEN TRIP
GEN START
START/BLOCK AR
Z< FAILURE
85
START A-R
153:402 D08
153:402 D01
153:402 D04
153:402 D11
153:402 D10
153:402 Z10
55
Z< PROT FAULT
84
VTS
U<
≥1
FUNCTIONS
TO BE SET
UNDER "CONF."
SP1
1 0
PSB
PH SEL
SOTF
WEI
VTS
SP2
1 0
DIR
POR
8L
SIGNALS TO OPTIONAL
OUTPUT RELAY UNIT
153:402 B10
153:402 B11
153:402 B04
153:402 B01
101:2B
101:2A
101:1A
101:18A
153:402 B09
153:402 B13
501:11
501:13
153:402 D12
153:402 B12
84
S+
85
S+
S4+
P-
56
85
المخطط النهائي
AS BUILT
MODIFIED
MODIFICATION DONE
UNDER CONTRACT 516/20/3
SYMBOL ID /D:XL824028-FBR:83/0
92-07-02 18.52
2 SCECO SNAG LS 92 26
1 AS BUILT LS 91 21
=2
33kV INTERCONNECTOR LINE
DISTANCE PROTECTION
B NILSSON
J SKOVGAARD
IA
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 16
L 9743.1017
XL 824 028-FBR
83
84
2

+R8.3

U9.101

RLKG 100 OPTION

DIAGRAM (SETTING UNDER "CONF")

RELAY	1	2	3	4	5	6	7	8	9	10
K1	BLCK	BLCK	T3U	TRI	TRWEI	TRI	BLCK	TRLC	TRLC	TRLC
K2	TRLC	GS	VTS	TRLC	TRLC	TRLC	ST3Io	ST3Io	GS	GS
K5	TRC	PSB	ECHO	PSB	PSB	PSB	PSB	TRC	TRC	TRC
K8	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH
K10	GS	FI1	TRZ1	TRIP3PH	SUP	TRIP3PH	TRZ1	TRIP3PH	FI1	TRIP3PH
K3	ZM1	TRZ1	TRC	TRIPR	PSR	TRIPR	TRWEI	TRIPR	TRZ1	ZM1
K14	ZM2	TRZ2	TRLC	TRIPS	PSS	TRIPS	TRLC	TRIPS	TRZ2	ZM2
K15	ZM3	TRZ3	TRWEI	TRIPT	PST	TRIPT	TREF	TRIPT	TRZ3	ZM3
K9	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS
K6	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1
K7	AR	SUPN	PSB	AR	CS	AR	CS2	AR	CS	GT
K4	NDS	SUPI	SUP	SUP	CR1	SUPI	CR2	SUP	SUP	AR
K11	TRZ1	PSR	PSR	TRZ1	ZM1	CS	CS2	TREF	PSR	PSR
K13	TRZ2	PSS	PSS	TRZ2	ZM2	CR1	CR2	TREF	PSS	PSS
K12	TRZ3	PST	PST	TRZ3	ZM3	TRC	SUPN	CS2	PST	PST
K16	TRZ3R	PSN	PSN	TRZ3R	ZM3R	TRZ1	SUPI	CR2	PSN	PSN
PLANT ADAPTED PROGRAMMING										
STANOARD PROGRAMMING AT DELIVERY	X									

83

RLKG 100

K1 K2 K5 K8 K10 K3 K14 K15 K9 K6 K7 K4 K11 K13 K12 K16

86 START A-R 164
402 Z02
402 Z03
402 Z05

850. Z<
X41 PROT OP 23
402 Z06
402 Z08

87 D/C-E/F PROT OP
402 Z01
402 Z12
402 Z13
402 Z07
402 D01
402 Z04
402 D04
402 D03
402 D02
402 Z09
402 Z11

83 VTS
402 Z10
402 Z14

164 402 B09 402 B02 402 B04 402 B07 402 B13 402 B12 402 B01 402 B08 402 B05

83 S+ P+

DWG: S10114-AFAAO
SH : 172
K124 A/B
X63 F
9
33kV PRDT OP
284

SYMBOL IO /D:XL824028-F8R:84/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=2 33kV INTERCONNECTOR LINE
1½	AS BUILT	LS	91 21	DISTANCE PROTECTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARO
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Use by Dept: TDCF
Year Week: 90 16

L 9743.1017
XL 824 028-FBR
Rev Ind: 2
Sheet: 84
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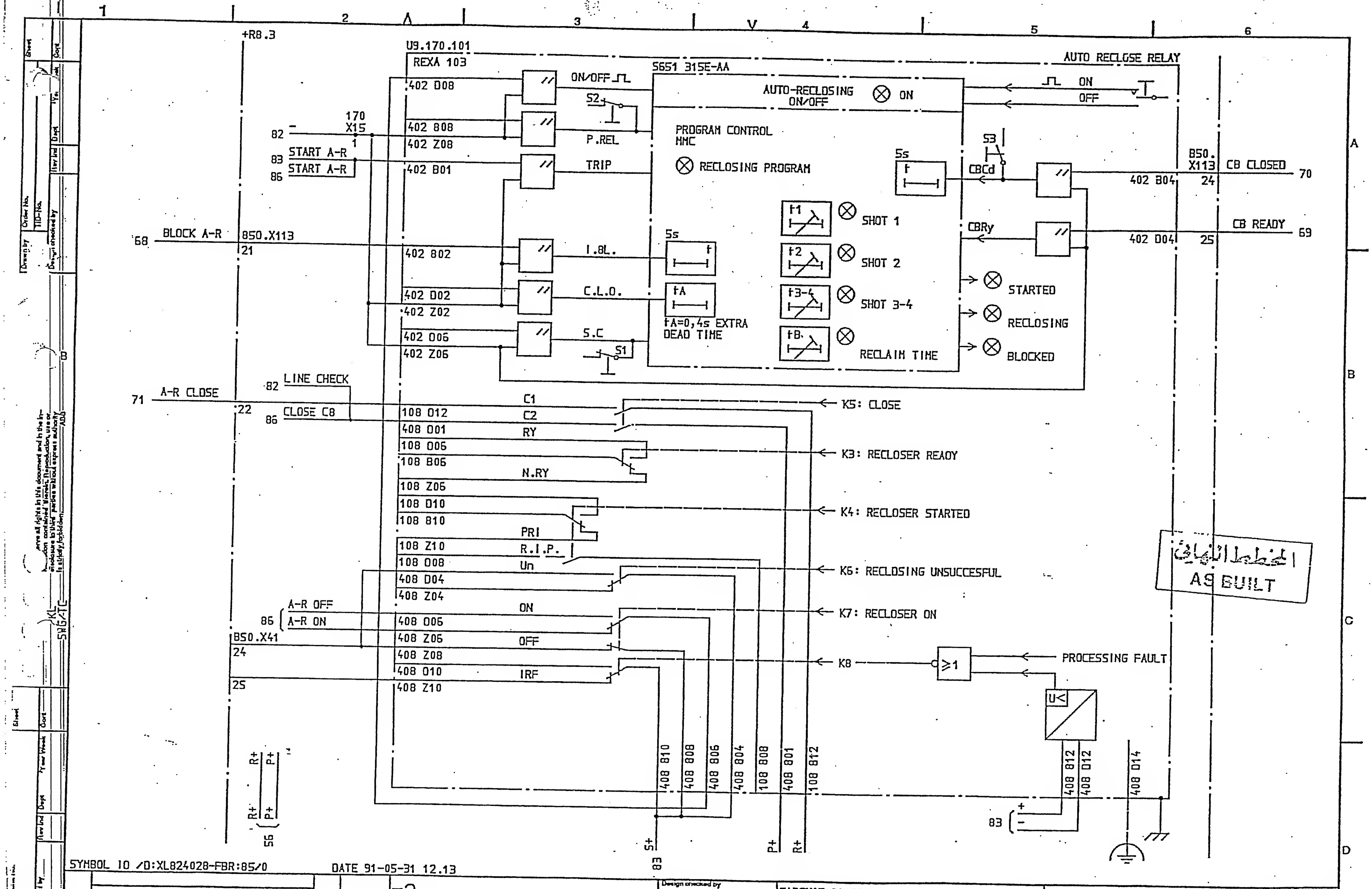
المخطط النهائي
AS BUILT

MODIFICATION DONE UNDER CONTRACT 516/20/3

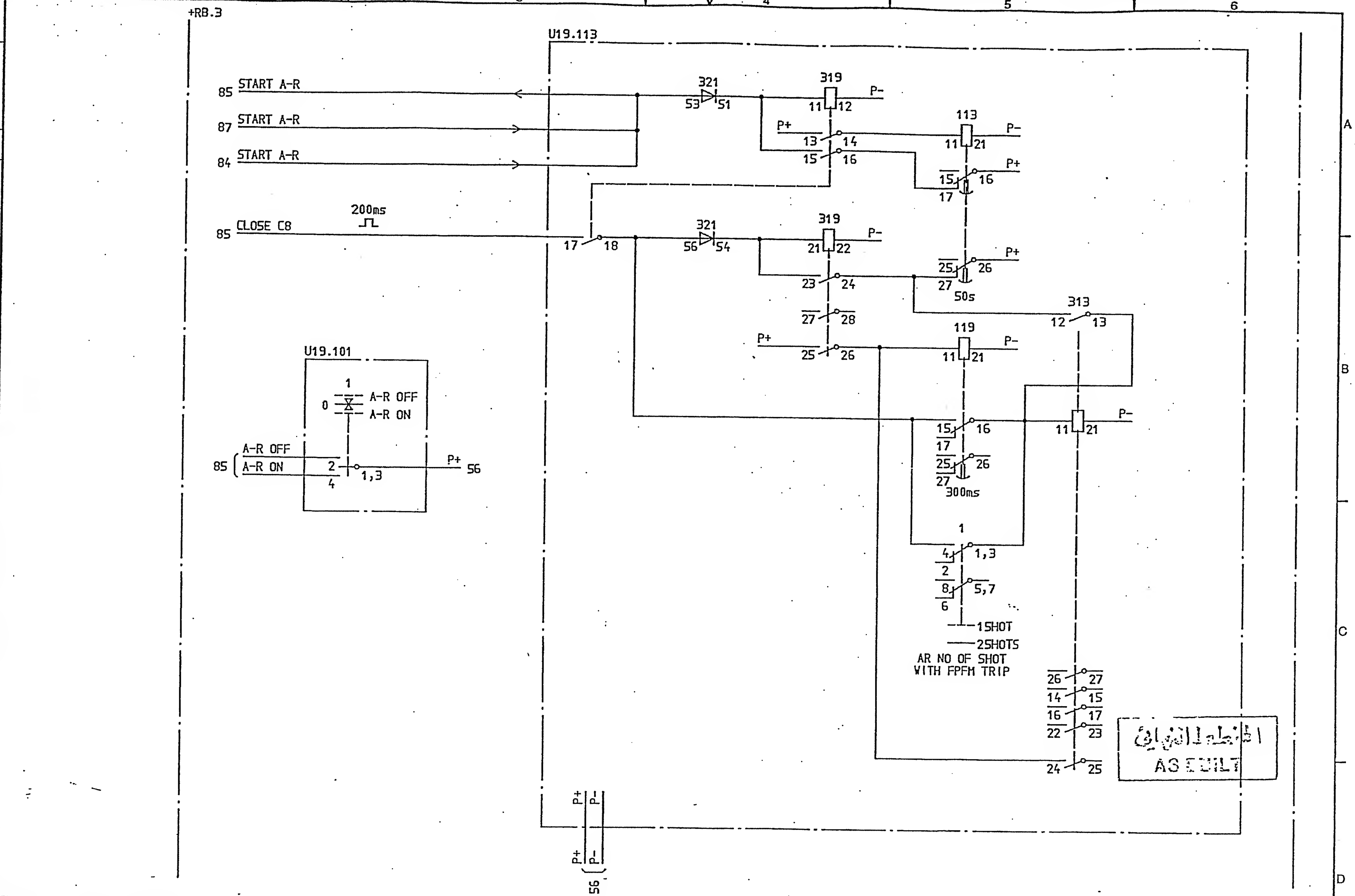
31/12/92

MODIFIED



SYMBOL ID /D:XL824028-FBR:85/0 DATE 91-05-31 12.13

1 AS BUILT	LS 91 21	=2 33kV INTERCONNECTOR LINE AUTO RECLOSE RELAY 79	Design checked by B NILSSON; Drawing checked by J SKOVGAARD; Drawn by IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TDCF 90 16	L 9743.1017 XL 824 028-FBR	Sheet 85 Cont 86



SYMBOL ID /D:XL824028-FBR:86/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week				
2	SCECO SNAG	LS	92 26	=2 33kV INTERCONNECTOR LINE	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017
1	AS BUILT	LS	91 21	AUTO RECLOSE RELAY LOGIC	Drawing checked by J SKOVGAARD; Drawn by IA	ABB HV SWITCHGEAR; Iss by Dept TDCF; Year Week 90 16	XL 824-028-FBR; Sheet 86; Cont 87; Rev Ind 2

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+RB.3

U15.101 O/C AND E/F PROT 2-50/51+50/51N

7431 154-EB RAC10

78 BACK-UP PROT TRIP B50.X113 26

86 START A-R

84 O/C-E/F PROT OP

55 O/C-E/F PROT FAULTY

101 13A 107:126 107:323 17A 16A 107:313 107:315

S1: 1 2 3 4 5 6 7 8

R T N I > I >> I ⏚> I ⏚>>

101 3A 4A 7A 8A 9A 10A

B50.X111 21 22 23 24

12R 12Y 12B 12NE

80

=2 -T11

107:417 101 1A 18A 2A 107:127 107:124 107:314 107:316 107:318 107:328

SWITCH 51:7 OPEN

S1+ P+ P- 56

الخطط الواقعي
AS BUILT

EXISTING TO BE MODIFIED

SYMBOL ID /D:XL824028-FBR:87/0 DATE 91-05-31 12.13

Rev Ind	Revision	Appd	Year Week	=2 33kV INTERCONNECTOR LINE	
1	AS BUILT	LS	91 21	OVERCURRENT AND EARTH FAULT	

Design checked by B NILSSON
Drawing checked by J SKOVGAARD
Drawn by IA

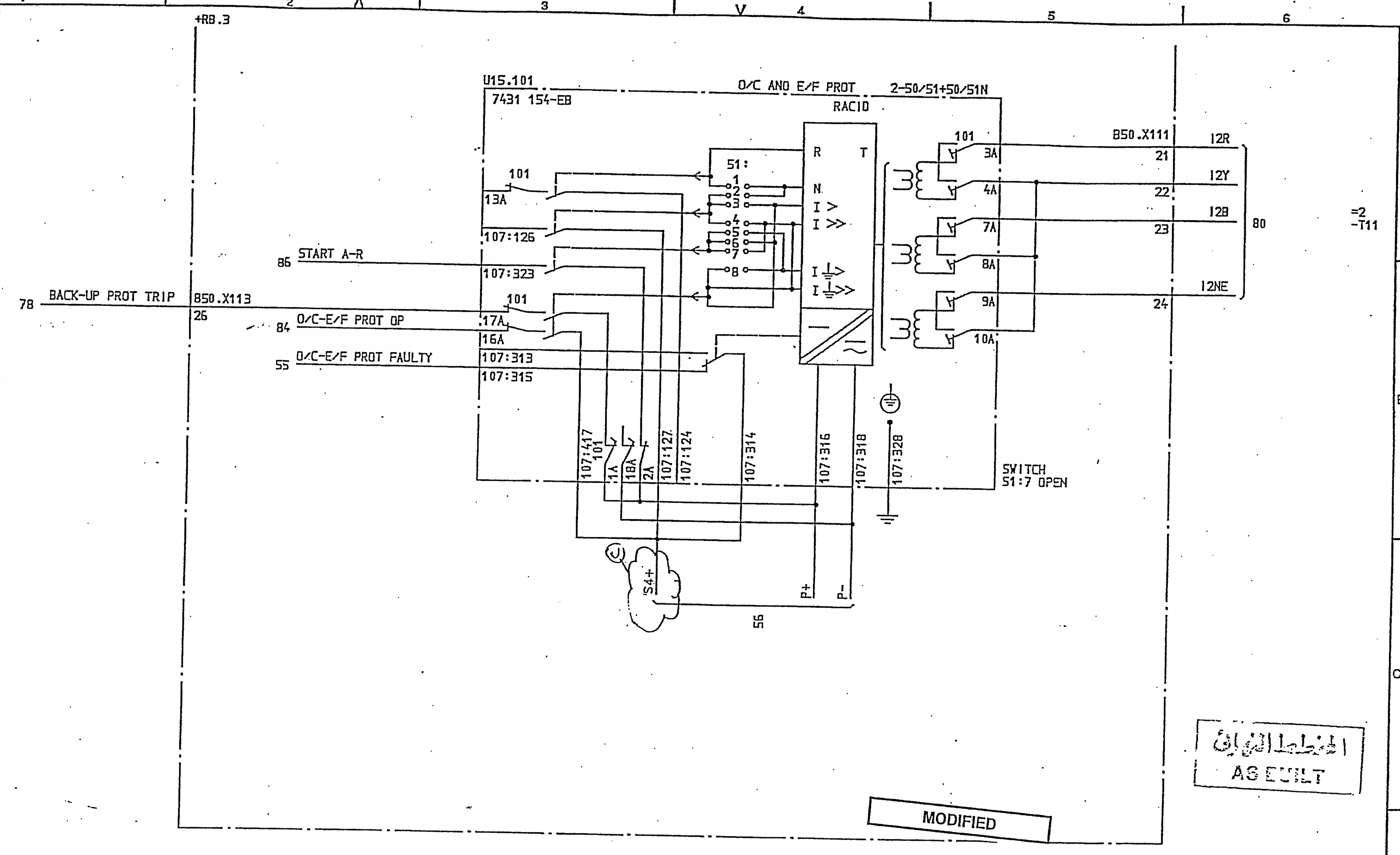
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Issued by Dept TDCF Year Week 90 16

L- 9743.1017
XL 824 028-FBR

Rev Ind 1 Sheet Lang Sheet 87 Rev Ind 1 Cont 101

ABB



MODIFICATION DONE UNDER CONTRACT 516/20/3

SYMBOL ID /O:XL824028-FBR:87/0 DATE 91-05-31 12.13

1	AS BUILT	LS	91 21	=2 33kV INTERCONNECTOR LINE OVERCURRENT AND EARTH FAULT	
Design checked by	B NILSSON	CIRCUIT DIAGRAM 5/5 8501 132/33kV SCECO CENTRAL SAUDI ARABIA		L- 9743.1017	Sheet 87
Drawing checked by	J SKOVGAARD	ABB HV SWITCHGEAR	TDCF 90 16	XL 824 028-FBR	Cont. 101
Drawn by	IA				

31/12/02

ITEM	DESIGNATION	SHEET
+KA.1	VOLTAGE DISTRIBUTION	107
+XA.1	SCADA INTERFACE EQUIPMENT	112
+HA.3	AUX. VOLTAGE SUPPLY	115
	HEATING AND LIGHTING	116
	C.B. OPERATION CIRCUITS	118
-375	CIRCUIT BREAKER EQUIPMENT	119
	INTERLOCKING	123
-371	EARTH SWITCH EQUIPMENT	124
	OVERCURRENT PROT.	128
-T30	CURRENT TRANSFORMER	130
-371	EARTH SWITCH EQUIPMENT	135
-375	CIRCUIT BREAKER EQUIPMENT	140
-305	CB 305 CLOSING AND TRIPPING CIRCUIT	141-143
-375	CB 375 CLOSING AND TRIPPING CIRCUIT	144-145
-375	DC SUPPLY LOOPING ±R1 ±R2	146-147

الخطط النهائية
AS BUILT

SYMBOL ID /D:XL82402B-FBR:101/0 DATE 91-05-31 12.13

1 AS BUILT LS 91 21

=3
33kV INCOMING TRANSFORMER BAY
LIST OF CONTENTS

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TDCF 90 36

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XL 824 028-FBR

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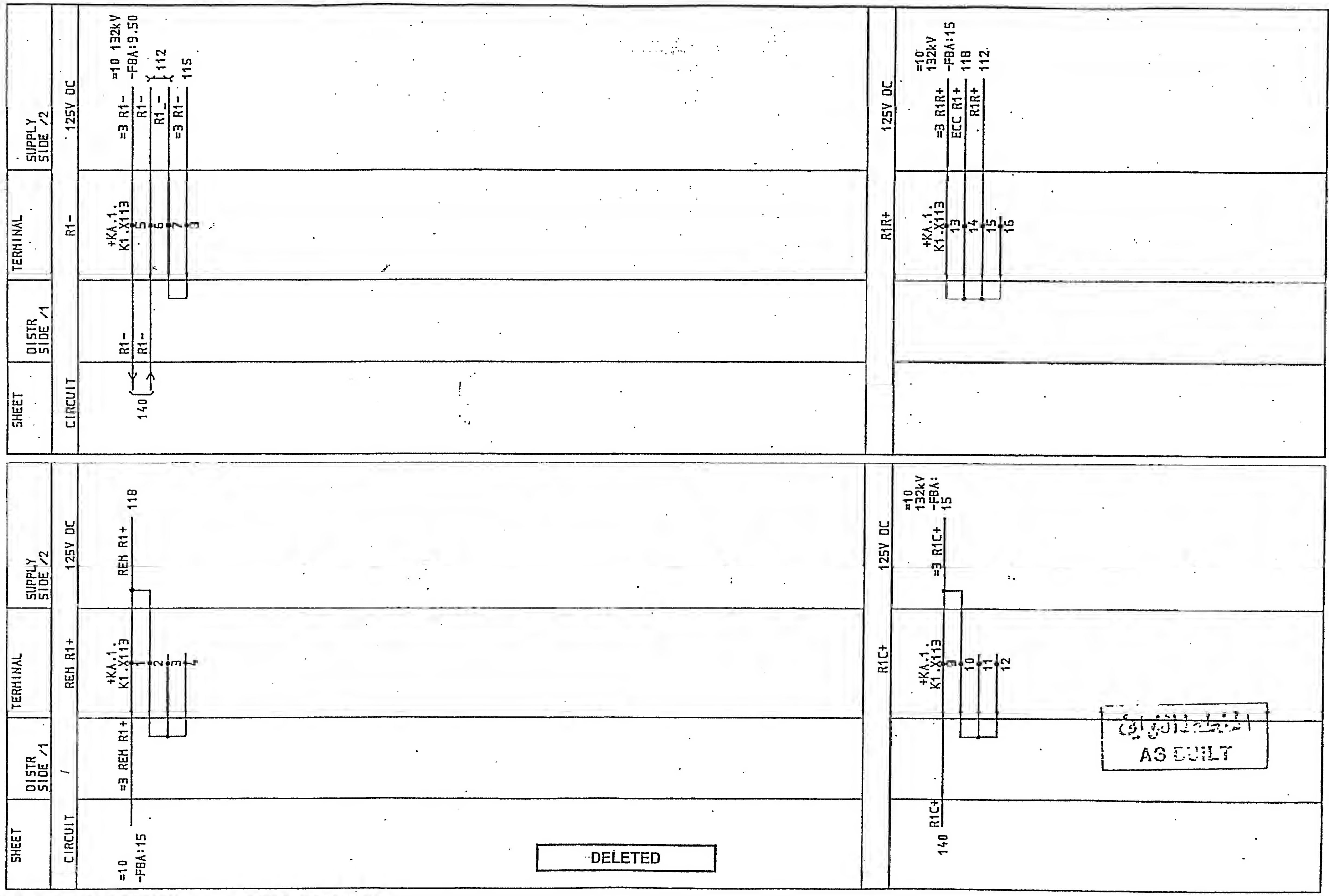

SYMBOL ID /D:XL824028-FBR:107/0 DATE 91-05-31 12.13

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=3
33kV INCOMING TRANSFORMER BAY
CB OPERATION
VOLTAGE DISTRIBUTION

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TCF
Year Week: 90 10

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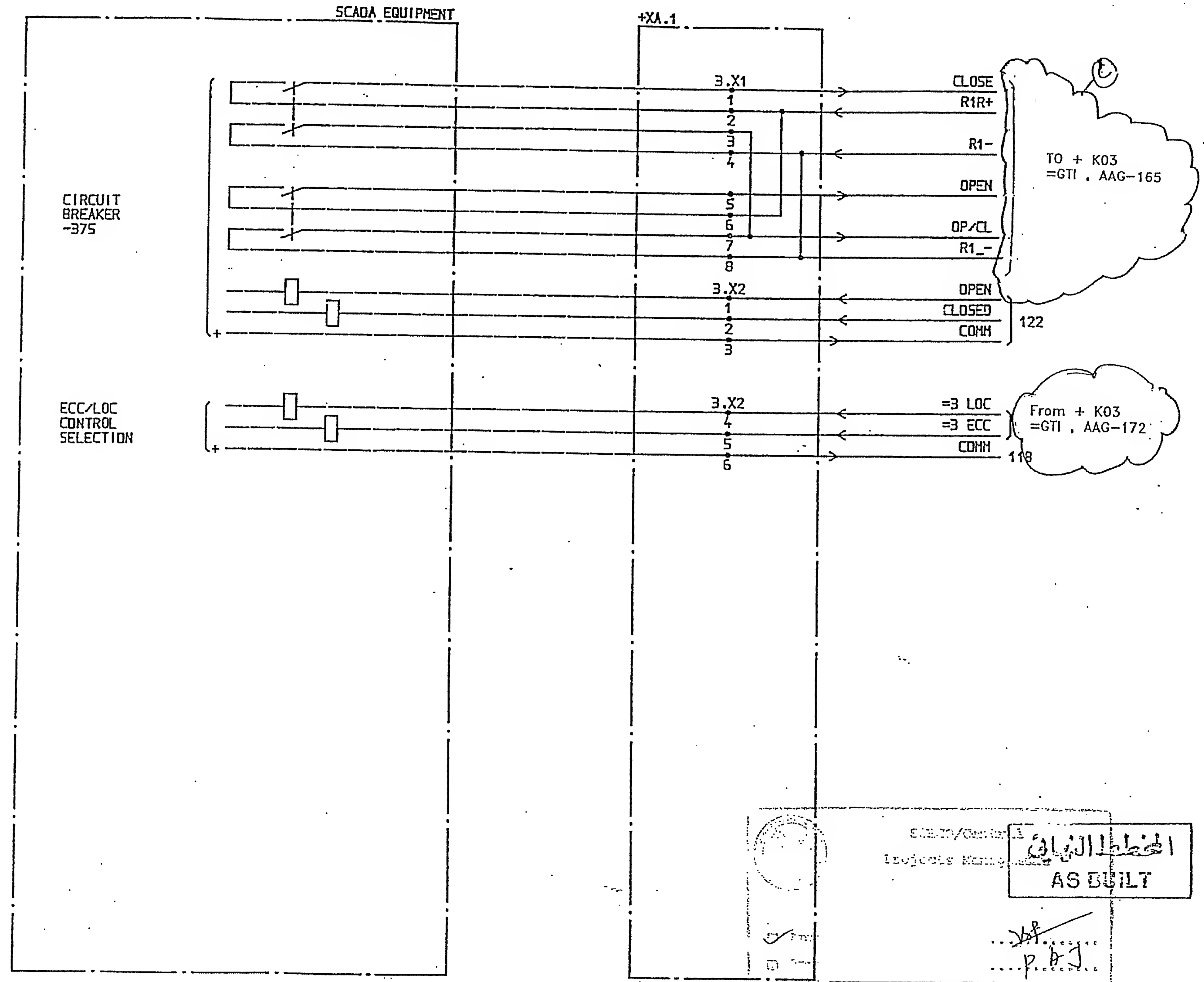

AS BUILT

DELETED

SYMBOL ID /D:XL824028-FBR:112/0

DATE 91-05-31 12.13

=3 33kV INCOMING TRANSFORMER BAY SCADA INTERFACE EQUIPMENT	Design checked by: B NILSSON Drawing checked by: S STRIDSMAN Drawn by: IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

Iss by Dept: TCF — Year Week: 90 10

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ABB

+HA.3

K9
R1+ X3 13 — 11 12 — R1-
13 14
15 16 — A 128
17 18
LOSS OF DC SUPPLY R1+/-

K10
M+ X2 10 — 11 12 — X2 19 M-
13 14
S1+ — 15 16 — B 122
K11:14
K11:24
17 18
LOSS OF DC SUPPLY M+/-

K9
R2+ — 21 22 — R2-
23 24
SI+ — 25 26 — B 115
27 28
LOSS OF DC SUPPLY R2+/-

K10
I+ X5 8 — 21 22 — X5 18 I-
23 24
S4+ X5 24 — 25 26 — A 115
27 28
LOSS OF DC SUPPLY I+/-

115 33KV AC/DC FAIL X5 25 K10.26 Q6:12

+HA4
FBR (15) X6 16 (22) 2 (22) 39 (19) 36 (15) 34 — X12 1 2 4 5 7

+K124A/B
AAO.172 X63 1 2 3 4

RB.4
B50.X41
FBR.55 21

R1+ R1- R2+ R2- H+ H- I+ I- S1+
115

SYMBOL ID /D:XL824028-FBR:115.10/0 DATE 91-05-31 12.14

=3 33kV INCOMING TRANSFORMER BAY
DC AUX. VOLTAGE SUPPLY

1	AS BUILT	LS	91 21	
Rev Ind	Revision	Appd	Year Week	

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
5/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Iss by Dept TDCF — Year Week 90 36

L 9743:1017
XL 824 028-FBR

Rev Ind 1 — Sheet 116
Lang — Sheet 115.10

AS BUILT

+HA.3

(+5)

Q3+ X2
Q3- 1
3
15
Q4+ X3
Q4- 1
SYS-1
DC DB:2
3
XQA4.3
1 Q5+ X4
2 Q5- 1
DC DB:1
3
XQA4.8
1 Q6+ X5
2 Q6- 1
3
B X1
220 -FBU:15 N 1
4
Q3+ X2
668 Q3- 2
4
X3
2
4

SH:18

SH:18

DWG:
N101369
-UFAB

Q6+ X5
Q6- 2
4
15
B X1
N 2
5
+K03 X6
33kV AC/DC
FAIL
65 X6
17
AAG.151

115.10

+K03 S1+
X4
13
16

115.10,119, S1+
120,122,128

DWG: S10114-AAG =3R1+ X3 R1+
118.10 =3 R1- 5 R1-
15
+K03
X42
1
118.10 =3 R1+ R1+ 115.10,118,119,
121,122
=3 R1- 6 R1- 115.10,118,
119,126
2
16

GT1_AAG.172

TRIP CIRCUIT No1

PH N 116

PH1 N1 116

-Q1 -Q2 -Q3 -Q4 -Q5 -Q6

X1 3 6

X1 7 8

X1 9 10

X2 5 13

115.10,119 H+ 122,123,124

115.10,119 H- 122,124

X6 34 33 A S1+ 122

X6 30 29 B S1+ 115.10

A S1+ 115.10

X4 5 10

X4 6 11

=3 R2+ 118.20

=3 R2+ 118.20

R2+ 115.10,119,120,128

R2- 115.10,120,128

TRIP CIRCUIT NO2

X5 5 I+ 115.10,121 119,120,122,124

10 I- 115.10,121

INDICATION

MODIFIED

LIGHTING PANEL

HEATING PANEL

MOTOR SUPPLY

AS BUILT

© MODIFICATION DONE UNDER CONTRACT S16/20/3

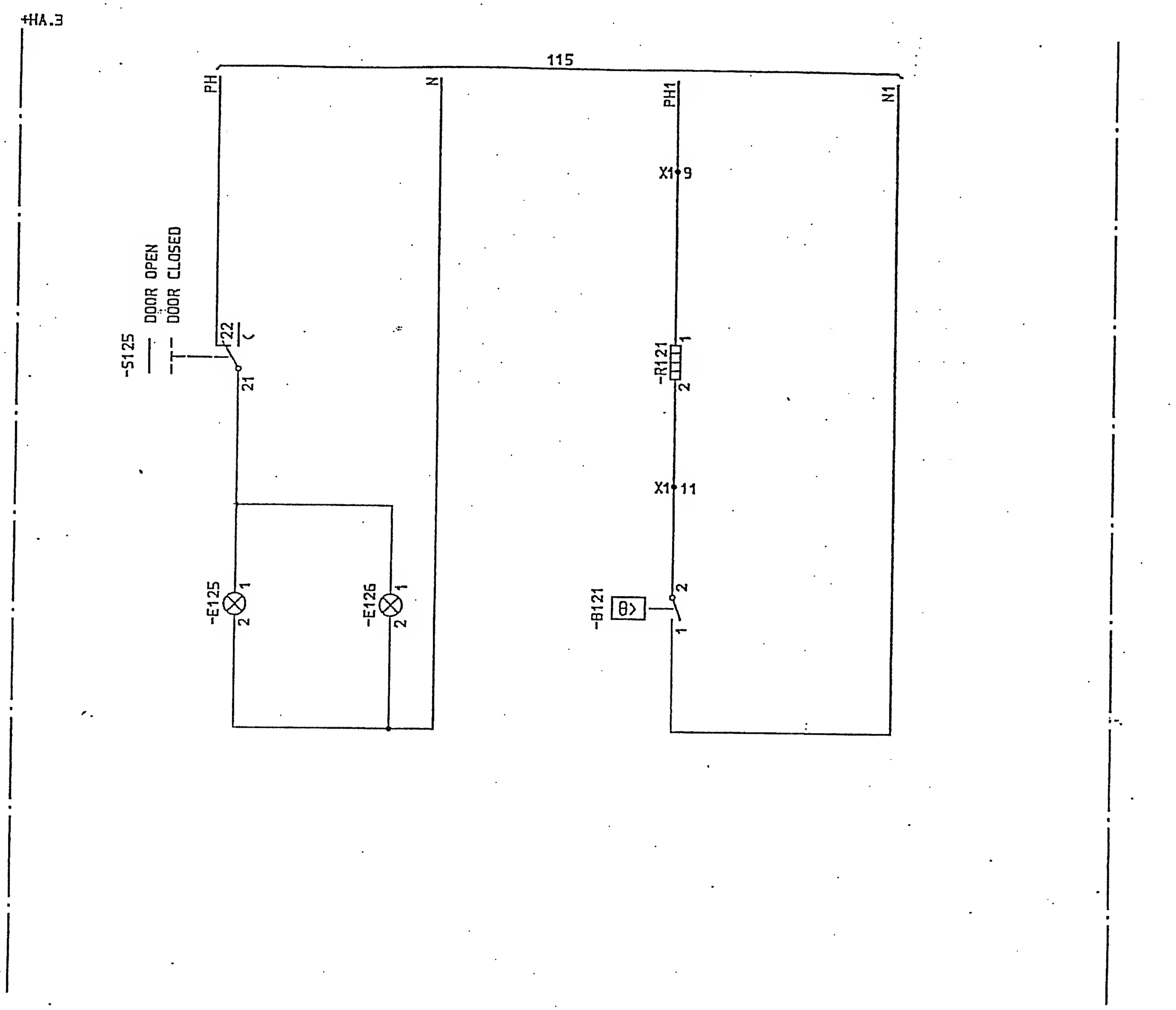
SYMBOL ID /D:XL82402B-FBR:115/0 DATE 91-05-31 12.13

1.1	AS BUILT	LS	91 21	=3 33kV INCOMING TRANSFORMER BAY	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by SK
Rev Ind	Revision	Appd	Year Week	OC AUX. VOLTAGE SUPPLY	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA; ABB HV SWITCHGEAR; Init by Dept TDCF; Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 1.1 Sheet 115.10

ABB



AS BUILT

SWG/TC

SYMBOL ID /0:XL824028-FBR:116/0

DATE 91-05-31 12.14

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=3

33kV INCOMING TRANSFORMER BAY

HEATER AND LIGHT

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM

S/S 8501 132/33kV

SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

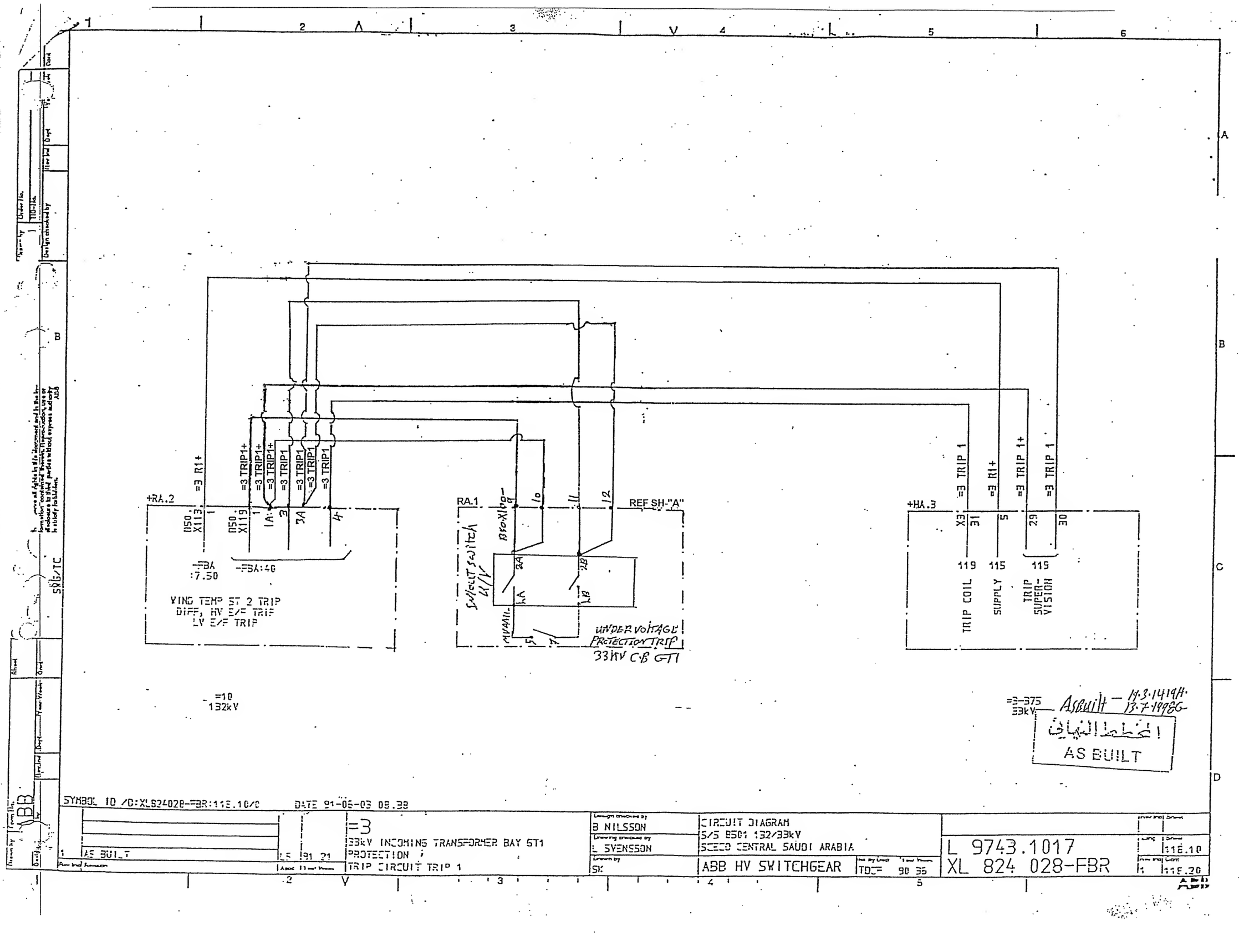
Iss by Dept: TDCF Year Week: 90 36

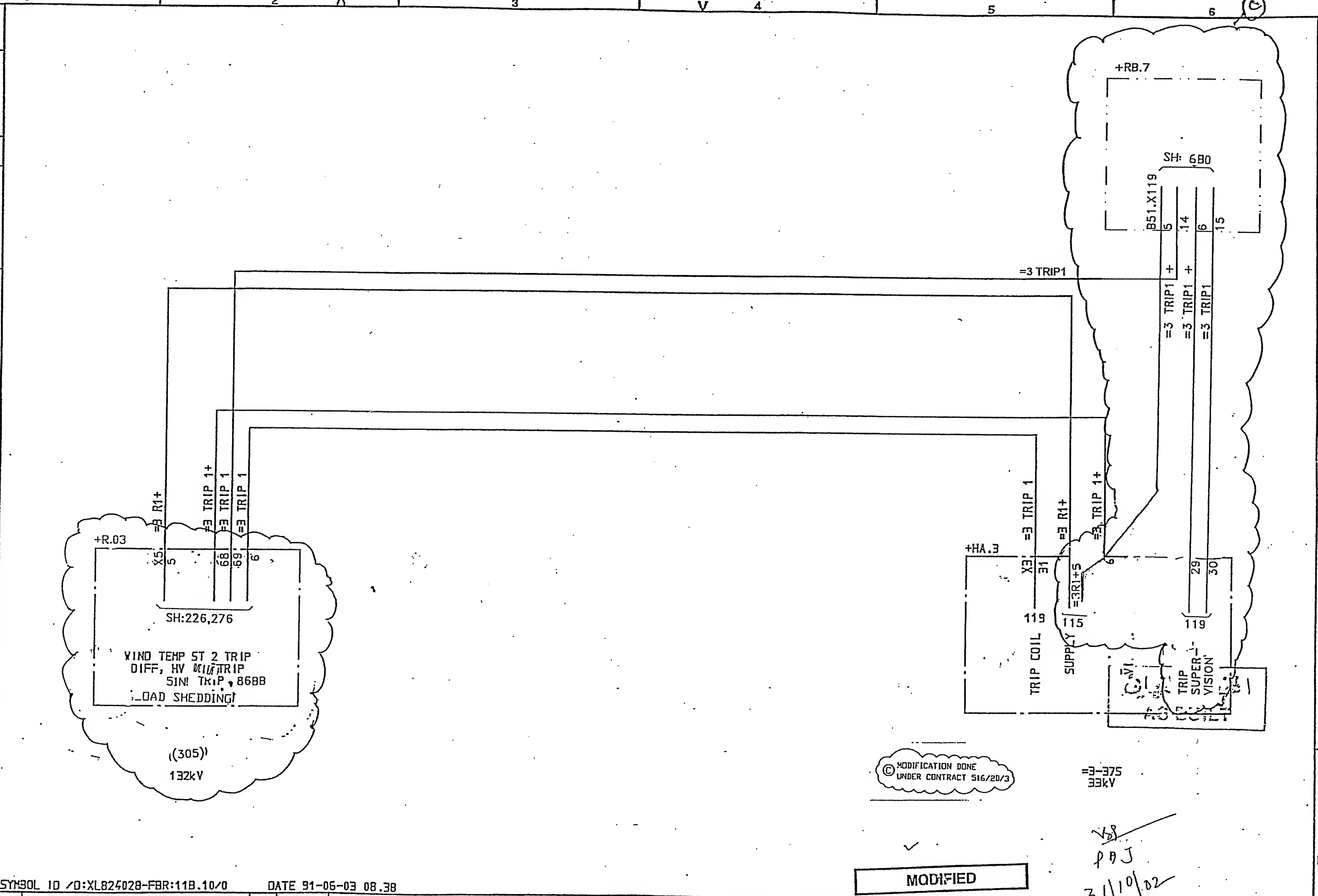
L 9743.1017

XL 824 028-FBR

Rev Ind: 1 Sheet: 116 Cont: 118

K03
+HA.3
X52:7 OPEN X3 28
X52:10 OP/CL 25
DWG:
GT1,AAG-165
K8
X3 26 21 11 X3 27
15 14
17 16
13 12 X3 9 B 119
23 22
25 24
27 26
39
8
-S1
OPEN
N
CLOSE
-S2
ECC
REMOTE
LOCAL
X3 R1- 18
2
1
5
6
X3 R1+ 8
8 7
X3 R1- 17
7
X3 45
44
2 1
4 3 X3 R1+
6 5 7
3
K7
X3 38 21 11 X3 37
15 14
R1+ 17 16 A. 121
13 12
4
23 22
25 24
27 26
X52:5 CLOSE 40
K03
X52:15 Ecc R1+ X6 19
K03
GTI , AAG-172
XS2:14 REM R1+
=3 ECC 20
22
R1+ 13 14
15 16
17 18
X6 51
K03
X4:15 COMM
X72:4 =3 LOC 21
X72:3 =3 REM 18
23
GT1,AAG-172
23 24
21 22
19 20
R1+ R1-
R1+ R1-
AS BUILT
MODIFIED
© MODIFICATION DONE UNDER CONTRACT 516/20/3
SYMBOL ID /D:XL824028-FBR:118/0 92-07-02 13.52
2 SCECO SNAG LS 92 26
1 AS BUILT LS 91 21
Rev Ind Revision Appd Year Week
=3 33kV INCOMING TRANSFORMER BAY
C.B SELECTOR SWITCHES
Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 36
L 9743.1017
XL 824 028-FBR
Rev Ind 2
Sheet 118
Cont 118.10-
Lang
ABB


+RA.2
=3 R1+
=3 TRIP1+
=3 TRIP1
050. X113
050. X119
1A
3
3A
4
-FBA :7.50
-FBA:40
WIND TEMP ST 2 TRIP
DIFF, HV E/F TRIP
LV E/F TRIP
RA.1
Breaking
Io
11
12
REF SH-"A"
Circuit switch
2A
2B
1A
1B
MAIN
5
7
UNDER VOLTAGE PROTECTION TRIP
33kV C.B GT1
+HA.3
=3 TRIP 1
=3 R1+
=3 TRIP 1+
=3 TRIP 1
X3
31
5
29
30
119
115
115
TRIP COIL
SUPPLY
TRIP SUPER-VISION
=10
132kV
=3-375
33kV
As built - 17.3.1419H.
13.7.1998G
المخطط النهائي
AS BUILT
SYMBOL ID /D:XLS24028-FBR:11E.10/0
DATE 91-05-03 08.38
=3
33kV INCOMING TRANSFORMER BAY ST1
PROTECTION
TRIP CIRCUIT TRIP 1
AS BUILT
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDC
90 35
L 9743.1017
XL 824 028-FBR
11E.10
11E.20
ABB



SYMBOL ID /D:XL824028-FBR:118.10/0 DATE 91-06-03 08.38

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=3
33kV INCOMING TRANSFORMER BAY GT1
PROTECTION
TRIP CIRCUIT TRIP 1

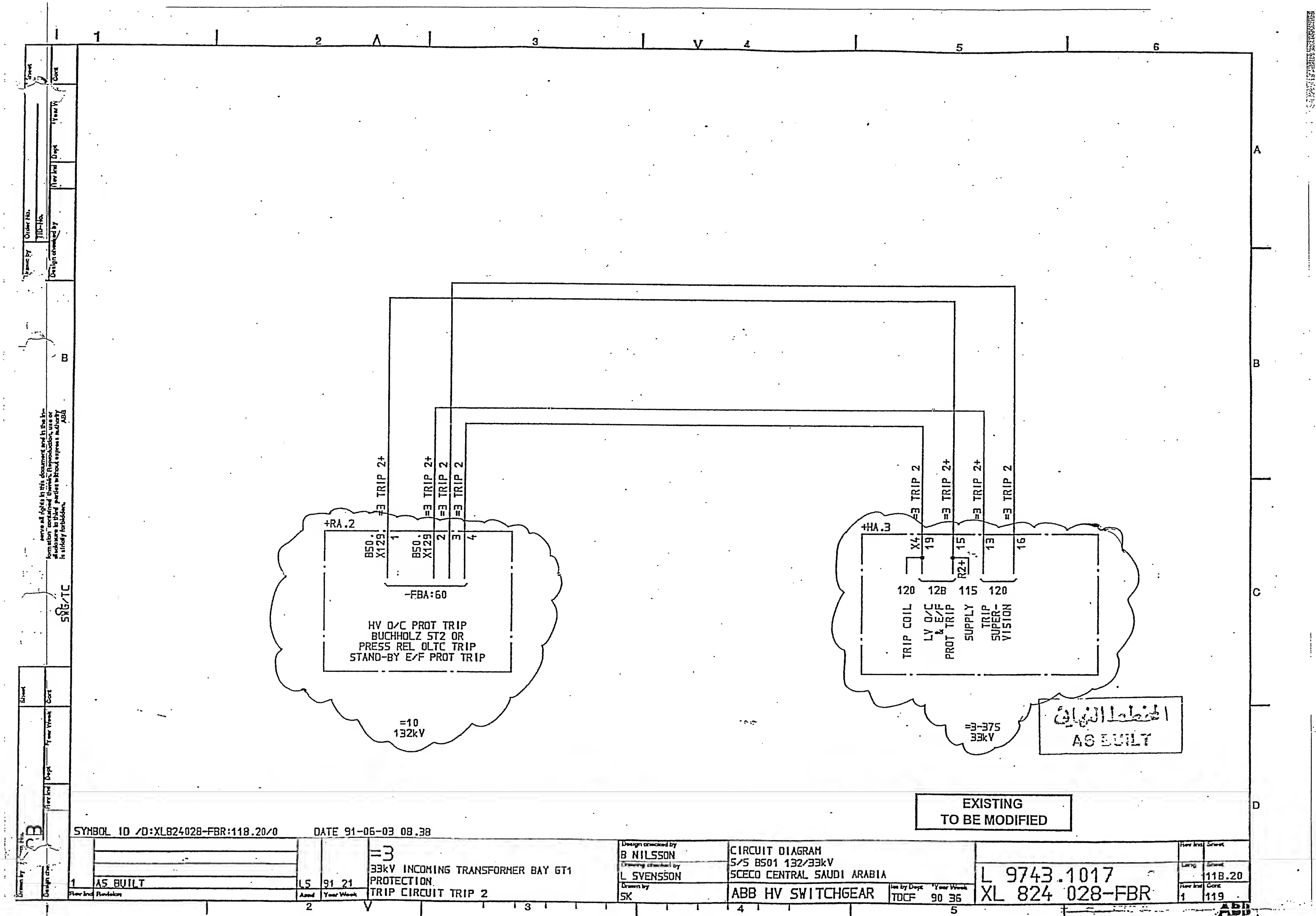
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 118.10
Cont: 118.20
Rev Ind: 1



+RA.2
B50.X129
B50.X129
=3 TRIP 2+
=3 TRIP 2+
=3 TRIP 2
=3 TRIP 2
1
2
3
4
-FBA:60
HV O/C PROT TRIP
BUCHHOLZ ST2 OR
PRESS REL OLTC TRIP
STAND-BY E/F PROT TRIP
=10
132kV
+HA.3
=3 TRIP 2
=3 TRIP 2+
=3 TRIP 2+
=3 TRIP 2
X4
19
15
13
16
R2+
120
128
115
120
TRIP COIL
LV O/C & E/F PROT TRIP
SUPPLY
TRIP SUPER-VISION
=3-375
33kV
المخطط النهائي
AS BUILT
EXISTING
TO BE MODIFIED
SYMBOL ID /D:XL824028-FBR:118.20/0
DATE 91-06-03 08.38
1 AS BUILT LS 91 21
=3
33kV INCOMING TRANSFORMER BAY GT1
PROTECTION
TRIP CIRCUIT TRIP 2
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S B501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
118.20
1 119

+R.03

=3R2+

=3 TRIP 2+

=3 TRIP 2

=3 TRIP 2

X5

61

59

60

62

SHT: 246,

SHT: 276

LOAD SHEDDING

LV REF PROT TRIP

HV REF PROT TRIP

BUCHHOLZ ST2 OR

PRESS REL OLTC TRIP

FIRE PROT, 8688

132kV

+HA.3

=3 TRIP 2

=3 R2+

=3 TRIP 2+

=3 TRIP 2

X4

19

=3R2+5

6

13

14

120

115

120

TRIP COIL SUPPLY

TRIP SUPER-VISION

=3-375

33kV

الخطط النهائي

AS BUILT

PAJ

31/12/02

MODIFIED

SYMBOL ID /D:XL824028-FBR:118.20/0 DATE 91-06-03 08.38

1	AS BUILT	LS	91 21	33kV INCOMING TRANSFORMER BAY GT1 PROTECTION TRIP CIRCUIT TRIP 2	
Rev Ind	Revision	Appd	Year Week		

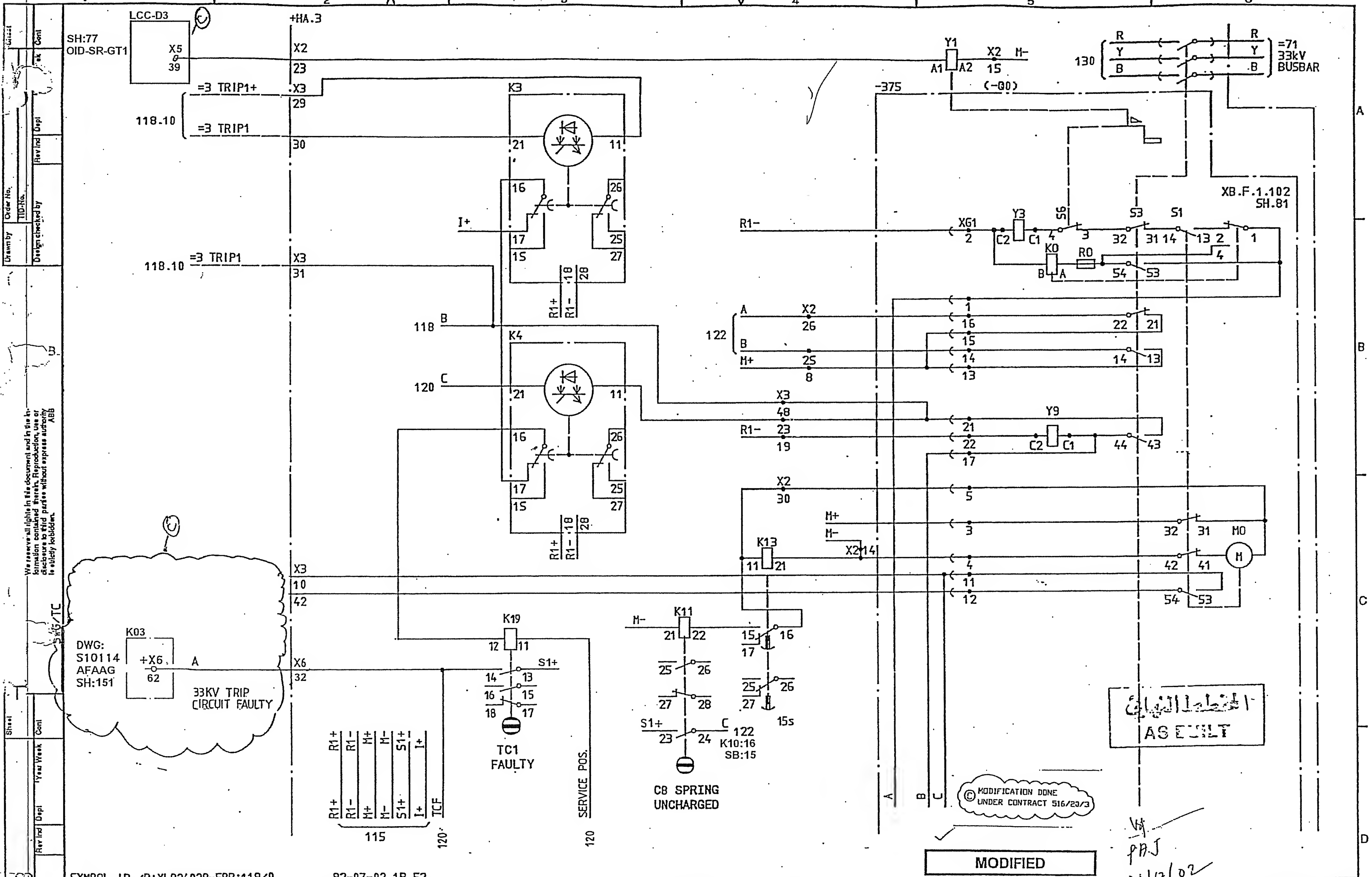
Design checked by: B NILSSON
Drawing amended by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1
Sheet: 118.20
Cont: 119



SYMBOL ID /D:XLB24028-FBR:119/0   92-07-02 18.52

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=3
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -375

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR — Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017.
XL 824 028-FBR

Rev Ind: 2.1 — Sheet: 119 — Cont: 120

118.20 =3 TRIP 2 +HA.3

119 SERVICE POS. TCF

SERVICE POS. 221

K19 21 22 S1+ 24 23 26 25 28 27

TC2 FAULTY

21 11 16 26 17 25 15 27

18 28 X4 10 R2+ R2-

-375 (-QO)

X4 19 X4 18 R2-

XG1 9 10 18 Y2 C2 C1 S4 14 13

XG2 14 13 54 53

XG1 20 19 42 41

XG2 16 15 4 3 32 31 22 21

55 2 1 14 13

6 5 44 43

10 9 54 53

12 11 32 31

8 7 22 21

X4 17 119 C X3 24

X6 48 47 46 X3 X3 11 X6 45 X6 X6 50 42 49 44 43 41 40 X4 13

X6 43

G

LCC-D3 X1:95 X2:31

DWG: OID-SR-GTI SH : 39

=3TRIP2+ 118.20 =3TRIP2 14

K5 21 11 16 26 17 25 15 27 I+ 18 28 R2+ R2-

R2+ R2- S1+ I+ R2+ R2- S1+ I+ 115

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AS BUILT

DAS 31/12/02

MODIFIED

SYMBOL ID /D:XL824028-F8R:120/0 92-07-02 18.52

Rev Ind	Revision	Appd	Year Week	
2.1	SCECO SNAG	LS	92 26	=3 33kV INCOMING TRANSFORMER BAY
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -375

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2.1 Sheet 120 Lang Cont 121

ABB

+HA.3
X6

DWG: OID-SR-GTI
SH : 69
LCC.D3
X3:70
X2:69

DWG: OID-SR-GTI
SH: 74
LCC.D3
X3:72
X2:71

DWG: OID-SR-GTI
SH : 39
LCC.D3
X1:89
X2:65

+R03
+U35.355
+X5 12 16 15 +X5 13
SH#226
DWG: S10114-AFAAG

=GTI , AAG-165
K03
X62
7

X3 32 A 118
X3 46
X3 47
X4 41
21
22
X3:33
X3:34
X6 10
6
4 B 124
52
53

K20
R1- X3 12 11 22
126 C R1+ 13 14
15 16
R1- K20 22 21
23 24
25 26

-375 (-Q0)
SERVICE POS 59
TEST POS 58
124
120 SERVICE POS. X6 I+ 56 57
122 2CB ABN 1CB ABN
126 B R1+ X3 R1+ 13 A 12
123 B
11 12 26 25 34 33 16 15 24 23 36 35 21 22 31 32 26 25
X3 12 11 36 16 15 35
14 13 23 24
TEST POS. SERVICE POSITION ← RACKING OUT

122 124
E D C
XS 11 12
-A0 11 12 2 3 5 6 8 9
10 1 4 7
XS 15 16 17
D2 D3 D4
C.8. OFF
C.8. ON
EARTH SW. ON
LAMPTEST S3
XS 14 1 2 XS 7 I+
XS 10 I-

R1+ I+ I- I-
R1+ I+ I- I-
115

AS BUILT
MODIFICATION DONE UNDER CONTRACT 516/20/3

SYMBOL ID /D:XL82402B-FBR:121/0 92-07-02 18.53

MODIFIED

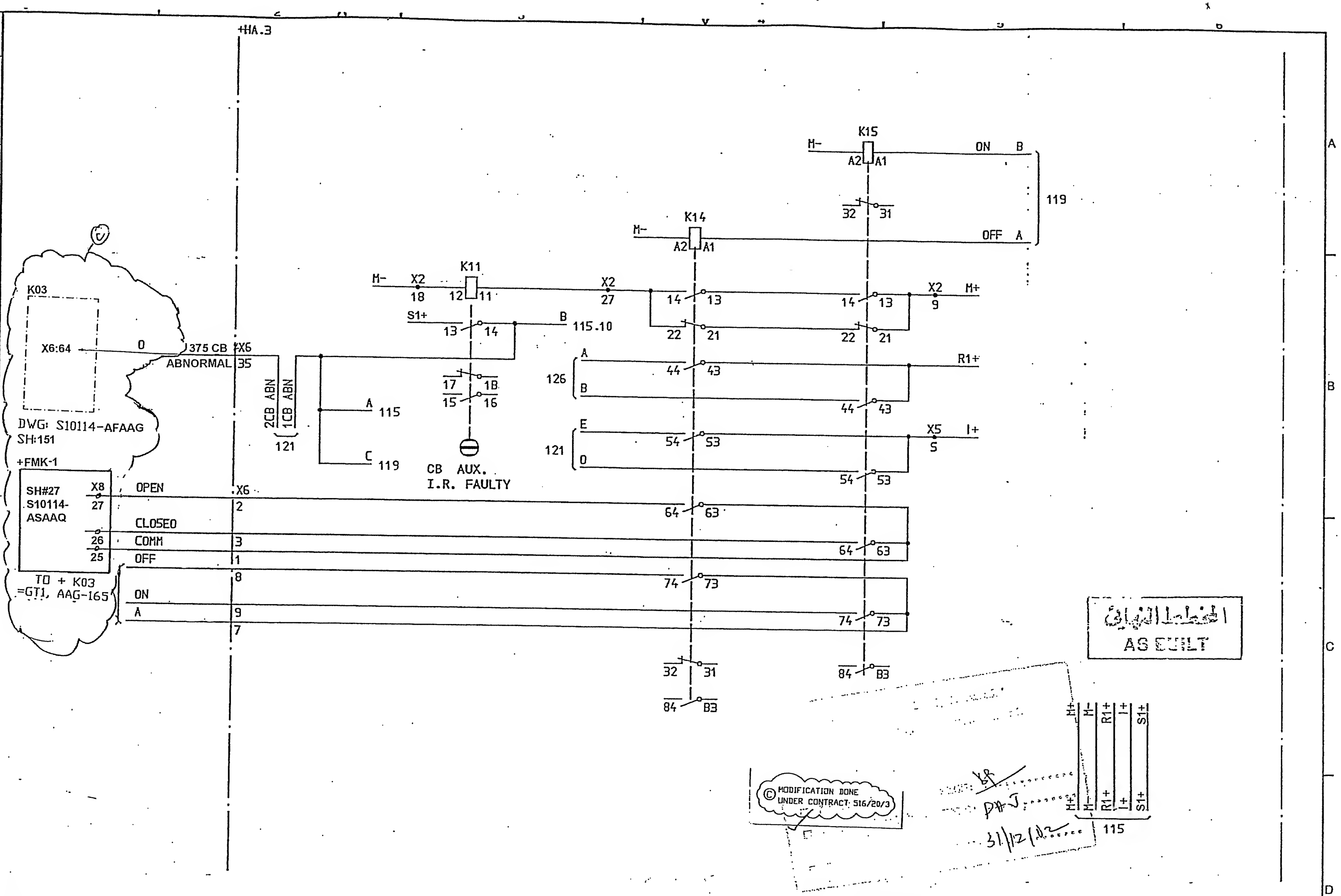
Rev Ind	Revision	Appd	Year Week	
2.1	SCECO SNAG	LS	92 26	=3 33kV INCOMING TRANSFORMER BAY
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -375

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S B501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR
Rev Ind 2.1
Sheet 121
Cont 122

ABB



SYMBOL ID /D:XL82402B-FBR:122/0 92-07-02 18.53

MODIFIED

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=3
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -375

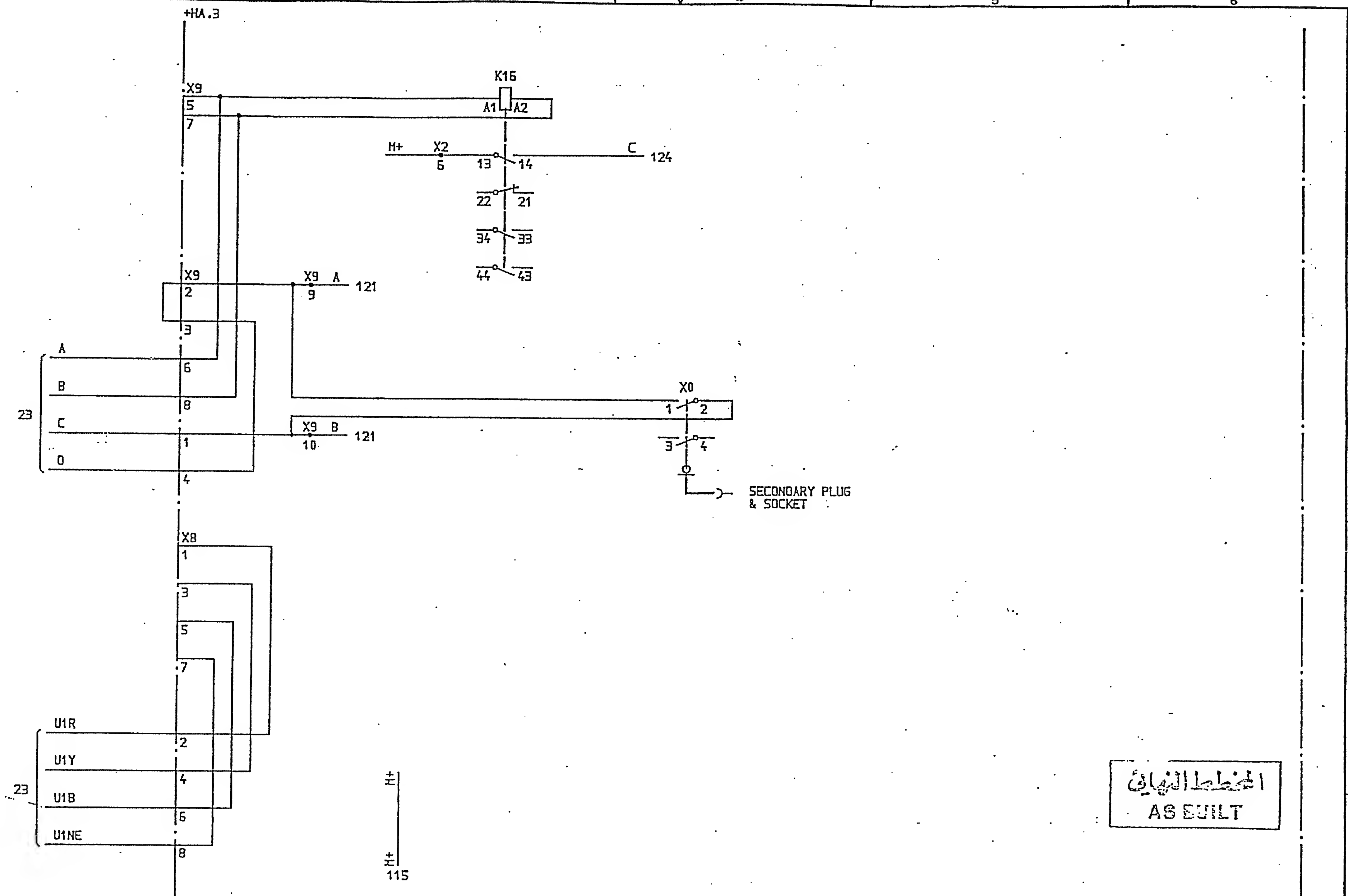
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 — Lang — Sheet: 122 — Cont: 123



SYMBOL ID /D:XL824028-FBR:123/0 DATE 91-06-03 08.39

1	AS BUILT	LS	91 21	=3 33kV INCOMING TRANSFORMER BAY INTERLOCKING RELAY FOR C.B. TRUCK
Rev Ind	Revision	Appd	Year Week	

Design checked by	B NILSSON
Drawing checked by	L SVENSSON
Drawn by	SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TOCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

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Lang	123
Rev Ind	Cont
1	124

ABB

+HA.3

K03
SH:165
GT1-AAG
X62:6 — HC+
X62:5 — OFF

LCC-D3
SH#62 X4:48 / X3:41
SH#77 X5:40
SH#53 X4:44 / X2:41
DWG:OID-SR-GT1
SH#62,77,53

K03
SH#165 X62 4
DWG:GT1,AAG

FMK-1
X8 30 29 28
SH#27
S10114-AAQ

D3 (305)
X1 X3 -S2 X3 X1
85 23 85 86 24 86
DWG: 01D-SR-GTI
SH: 49

X6 5 — 8 121
11
13
14
X2 22
X6 36
37
OFF 58
X6 12
ON 59
COMM 15
X2 7 — M+
24

S9 11 12 121

115

131 R Y B
-371 (-E.S)
S1
40 41
42 43
44 45
46 47
48 49
S2
40 41
42 43
44 45
46 47
48 49
Y8 1 2

123 C X2 21
I+ X5 C 6 13 121
M- X2 16

MODIFICATION DONE UNDER CONTRACT 516/20/3
SIGN:
DATE: 3/12/02
AS BUILT

MODIFIED

SYMBOL ID /D:XL824028-F8R:124/0 92-07-02 18.53

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=3
1	AS BUILT	LS	91 21	33kV INCOMING TRANSFORMER BAY
				EARTH SWITCH EQUIPMENT -371

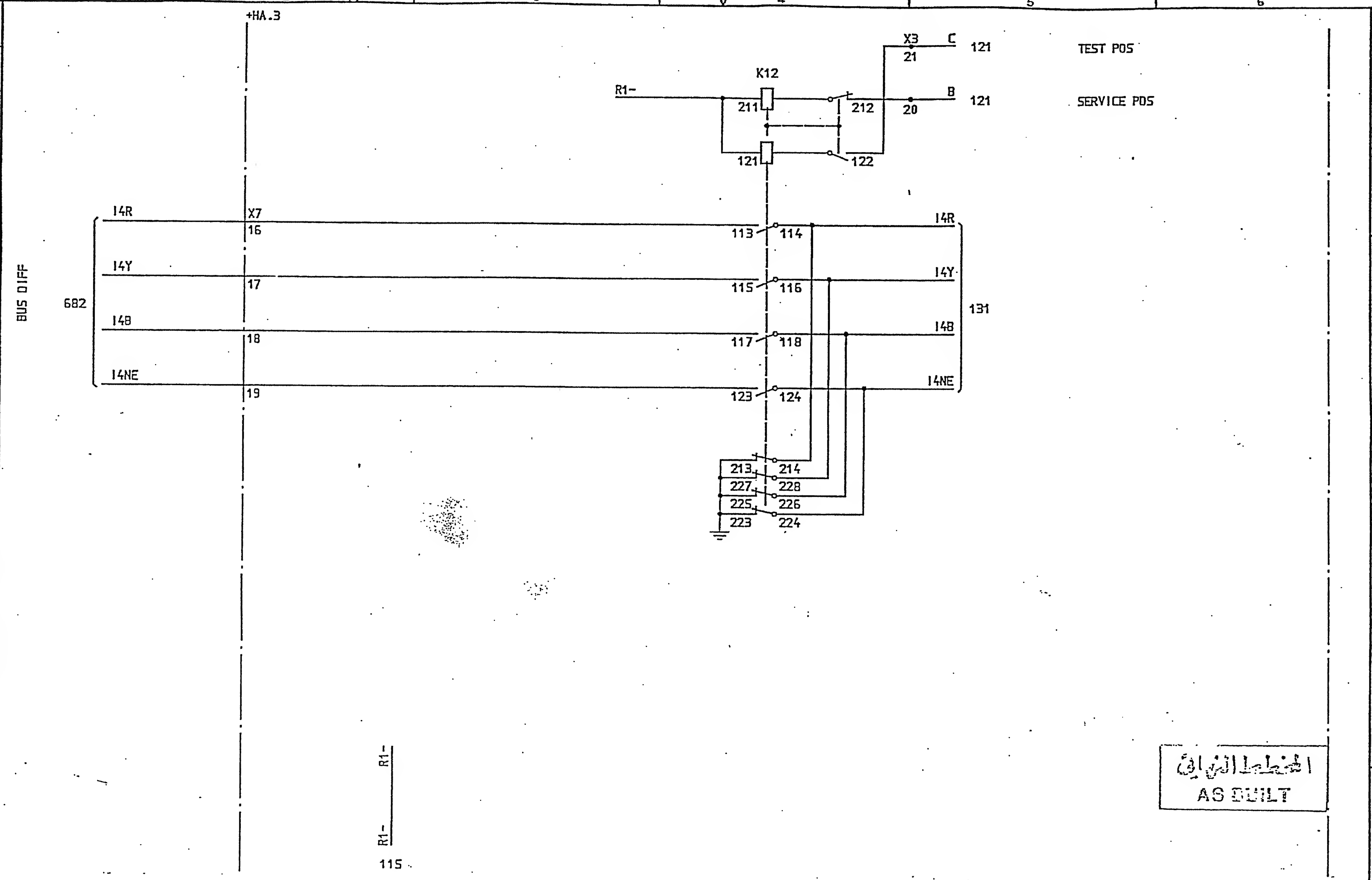
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2 Sheet 124 Lang Sheet Cont 126

ABB



SYMBOL ID /D:XL824028-FBR:126/0 DATE 91-06-03 08.39

1 AS BUILT	LS 91 21	=3 33kV INCOMING TRANSFORMER BAY C.T. SHORTING RELAY	Design checked by B NILSSON Drawing checked by L SVENSSON Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TDCF 90 36	L 9743.1017 XL 824 028-FBR
Rev Ind Revision	Appd Year Week				Sheet 126 Cont 128

ABB

+HA.3

K.03
S10114-AFAAG SH:53
2CH3
X6:73
X4:23
TRANSF LV O/C & E/F OP
S2+
X6
27

R.03
S10114-AFAAG
X4
SH:207
32
33
R2+
R2+
X4
15
7
16
X5
SH:246
29
51S/51INSTRIP
X6
SH:241
37
51S/51INSTRIP
X4
SH:209
74
FRIBD+
X6:54
X6:55
16A A8
X6
26

K03
X6
58
33kV PROT FAULTY
28
A
11S.10
DWG:S10114-AFAAG

K18
R2-
12 11
13 14
15 16
17 18
TRIP INDIC.
94 - 2

K2
R2-
21 11
13 12
15 14
R2+ 17 16
23 22
25 24
27 26

K1.101
11A 11B
17A 17B
R2+
13A 13B
12A 12B
15A 15B
16A 16B
2A 2B
S1+ → K9:15

K1
LV O/C 4E/F PROT(50S/51NS)
X2.1
SGR1 SGR2 SGR3 SGR4 SGR5 SGR6 SGR7 SGR8
IRF
START TRIP
I1> Blocking of stage I1>
I2> Blocking of stage I2>
Io> Blocking of stage Io>
Io>> Blocking of stage Io>>
INDICATORS RESET
RELAYS & IND. RESET I/O
MEMORIZED VALUES RESET
SGB1

REJ525
x=FACTORY DEFAULT
K1.101
3A 3B
4A 4B
5A 5B
6A 6B
7A 7B
8A 8B
9A 9B
10A 10B
X1.1
5A
1A
X1.1
5A
X1.1
5A
12R 12Y 12B 12NE
130

K1.101
1B 1A
18B 18A
R2+ R2-

K18
21 22
23 24
25 26
27 28

R2+ R2- S1+
R2+ R2- S1+
115

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PAS
31/12/02
AS BUILT

/ MODIFIED

SYMBOL ID /D:XL82402B-FBR:128/0 92-07-02 18.53

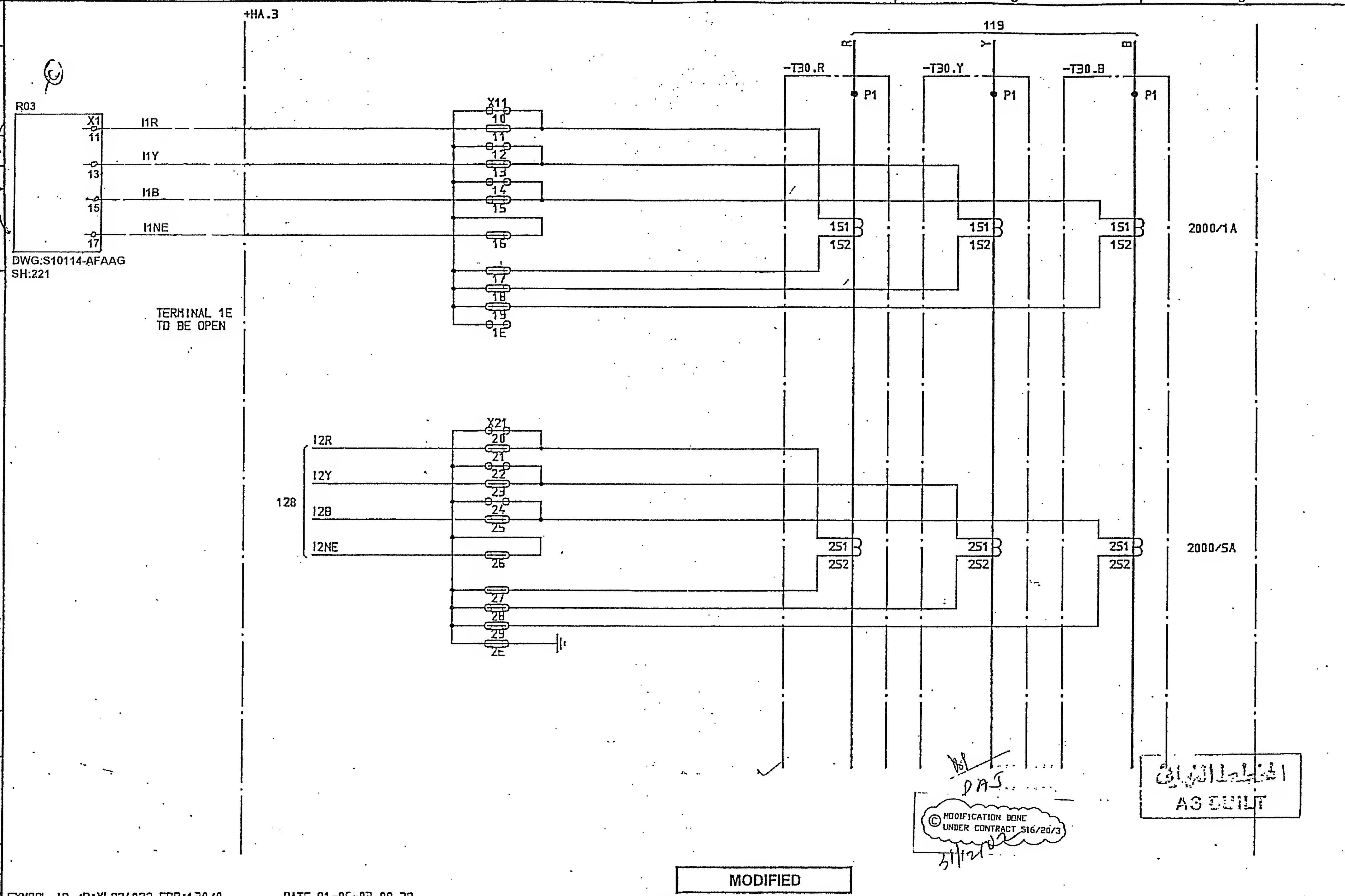
Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=3 33kV INCOMING TRANSFORMER BAY
1	AS BUILT	LS	91 21	OVERCURRENT PROT 33kV

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2 Sheet 128 Cont 130



SYMBOL ID /D:XL824028-FBR:130/0 DATE 91-06-03 08.39

Rev Ind	Revision	Appd	Year Week	
1	AS BUILT	LS	91 21	

=3

33kV INCOMING TRANSFORMER BAY

CURRENT TRANSFORMER -T30

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 .028-FBR

Rev Ind: 1 — Sheet: 130 — Cont: 131

+HA.3

+K03

X1
27 I3NE
25 I3B
23 I3Y
21 I3R

DWG:S10114-AFAAG
SH#123

X7
12
15
14
13

-S4
R
Y
B

X7
11
10 9
8 7
6 5

X11
36
35
34
33
32
31
30

-D1
A
1 8

X11
40
41
42
43
44
45
46
47
48
49
4E

14R
14Y
14B
14NE
126

-T30.R
-T30.Y
-T30.B

351
352
353
2000-1000/5A

451
452
2000/1A

P2

R
Y
B
124

TERMINAL 4E
TO BE OPEN

TO 132kV SWG
=GT1
-FBA:229

MODIFICATION DONE
UNDER CONTRACT 516/20/3

AS BUILT

MODIFIED

SYMBOL ID /D:XLB2402B-FBR:131/0 DATE 91-06-03 08.39

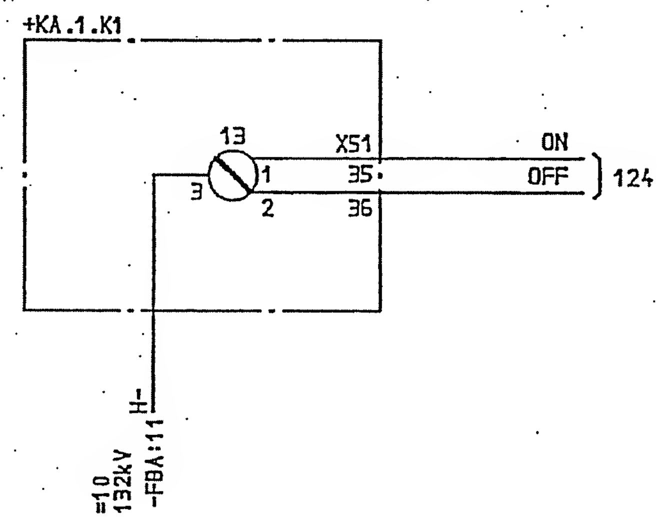
=3
33kV INCOMING TRANSFORMER BAY
CURRENT TRANSFORMER -T30

B NILSSON
L SVENSSON
SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

L 9743.1017
XL 824 028-FBR

Sheet 131
Cont 135



AS BUILT

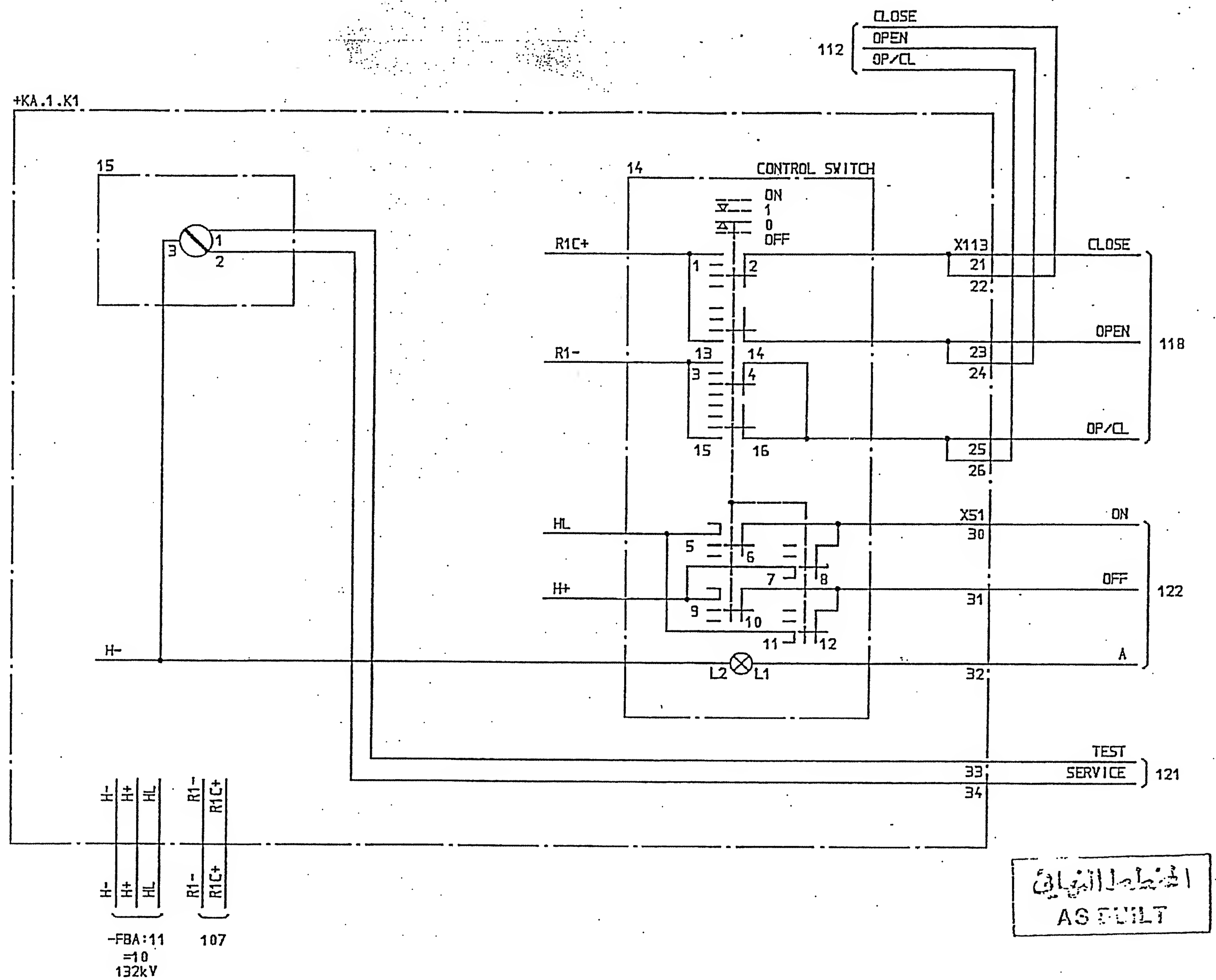
DELETED

SYMBOL ID /O:XL824028-FBR:135/0 DATE 91-06-03 08.39

1 AS BUILT	LS 91 21	=3 33kV INCOMING TRANSFORMER BAY EARTH SWITCH EQUIPMENT -371 INDICATION	Design checked by B NILSSON Drawing checked by S STRIOSHAN Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TCF 90 08
Rev Ind Revision	Appd Year Week			L 9743.1017 XL 824 028-FBR Sheet 135 Cont 140 Rev Ind 1

PKL SKG/TC

ABB



الخطط النهائي
AS BUILT

DELETED

SYMBOL ID /D:XL824028-FBR:140/0 DATE 91-06-03 08.39

1	AS-BUILT	LS	91-21	
Rev Ind	Revision	Appd	Year Week	

=3
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -375
CONTROL AND INDICATION

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept: TCF Year Week: 90 08

L 9743.1017
XL 824 028-FBR

Sheet: 140
Cont: 141
Rev Ind: 1

DWG:SI0114-ASAAQ
SH:27

FMK.1

SMK.2
B2.10.52/56
CLOSE (ECC)
OPEN (ECC)
B2.10.49
B2.10.53

5ECC
5ECCC
5ECCO

K03 (SH.163,171)

K1.18
CLOSE (CR)
OPEN (CR)

K1.19
43 (ECC)
43 (CR)

XD.14
XD.13
XD.15
A1.3078

5R
5RCT
5RCS
5RO

GIS-LCC/BAY DO3
+(SH.39/40)

MCB13
CONTROL SUPPLY
(LOCAL/REMOTE)

-CS1 (LCC)
CLOSE (LCC)
OPEN (LCC)

MBC12

CX
S1(305)
-52Y
(ANTI-PUMPING)

-P1X
HYD. PRESSURE CLOSING LOCKOUT

-GD1X
SF6 GAS PRESSURE CLOSING LOCKOUT

CLOSING COIL
RC

+R03
(SH.226) U15.131.107
(SH.246) U31.101.107
(SH.252) U19.101.307
(SH.266) U39.5001
(SH.276) U39.5005
86T1
86T2
86
86B
96-2/630P1/96-2

+RB7
B50
X99
U03.143.107

R1+
R1-
(SH.226) U35.355
LOC. CHECK

HA.3
OFF S4
(TEST POS.) S8
DWG SHT.18

-L10(304)
-L10(306)
X3.32
-L4(304)
-L4(306)
-CX
X3.66
AUX RELAY (CLOSE)
-TX
AUX RELAY (OPEN)
CONTROL SUPPLY
MCB13
MCB12

SYMBOL

DATE 91-06-03 08.39

=3
132/33kV GRID TRANSFORMER
132kV CB.305 CLOSING CIRCUIT =GT1

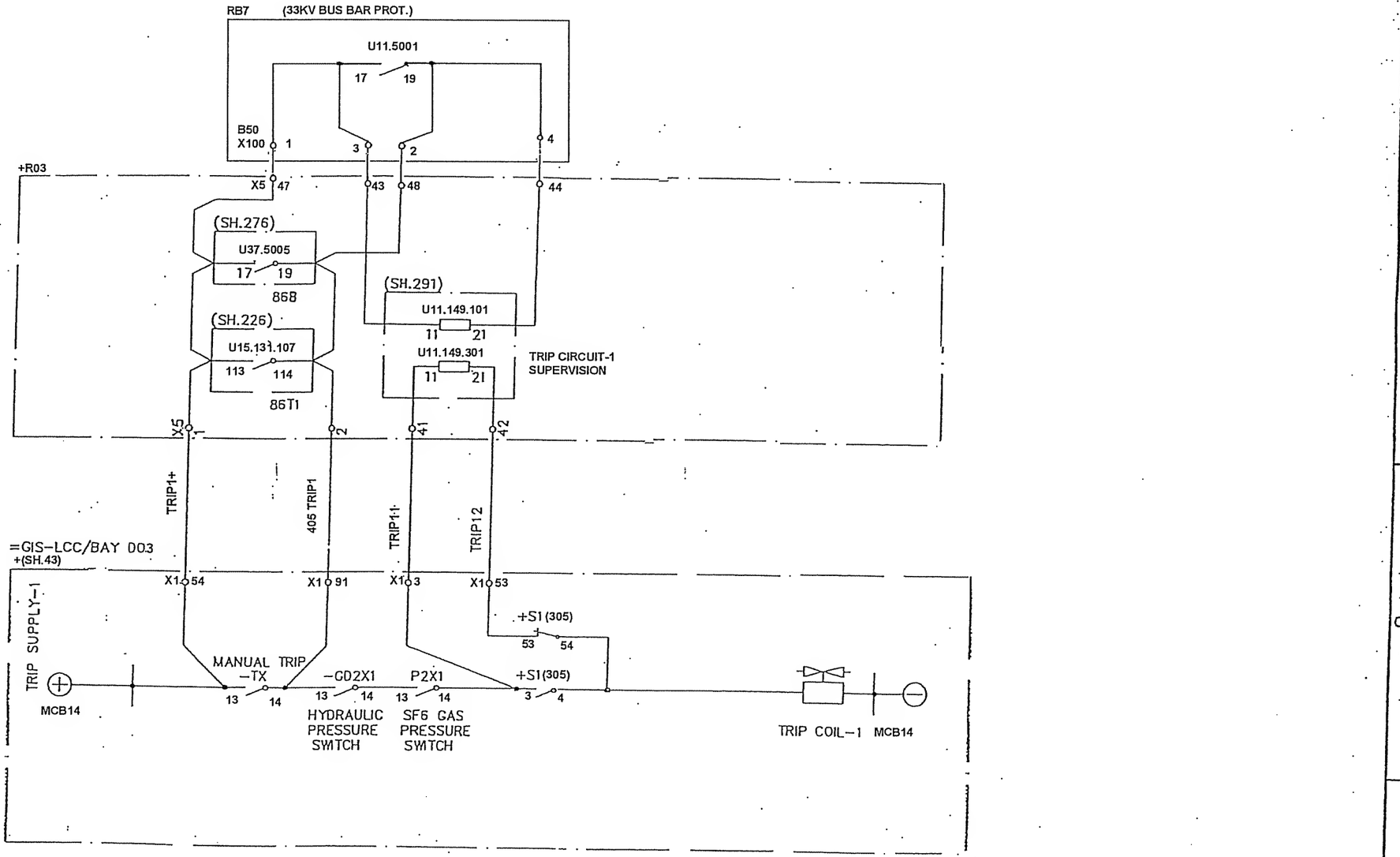
1 AS-BUILT LS 91-21

Design checked by B NILSSON
Drawing checked by S STRIDSMAN
Drawn by SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TCF 90 08

L 9743.1017
XL 824 028-FBR

Sheet 141
Sheet 142



SYMBOL

DATE 91-06-03 08.39

1	AS-BUILT	LS	91-21	
Rev Ind	Revision	Appid	Year Week	

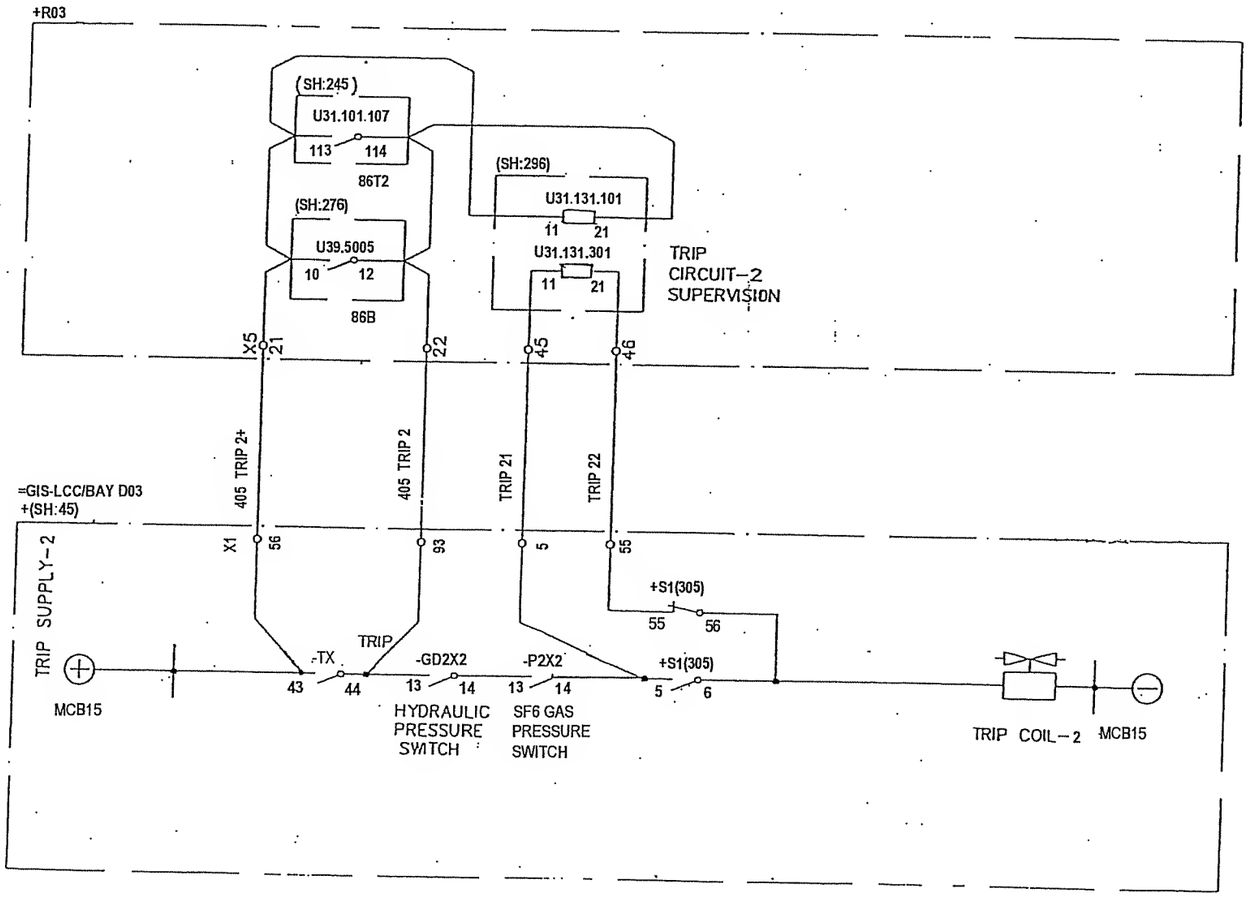
=3
132/33kV GRID TRANSFORMER-1
BREAKER-305 TRIPPING COIL-1 =GT1

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Init by Dept / Year Week: TCF 90 08

L 9743.1017
XL 824 028-FBR

Rev Ind: 1
Sheet: 142
Cont: 143

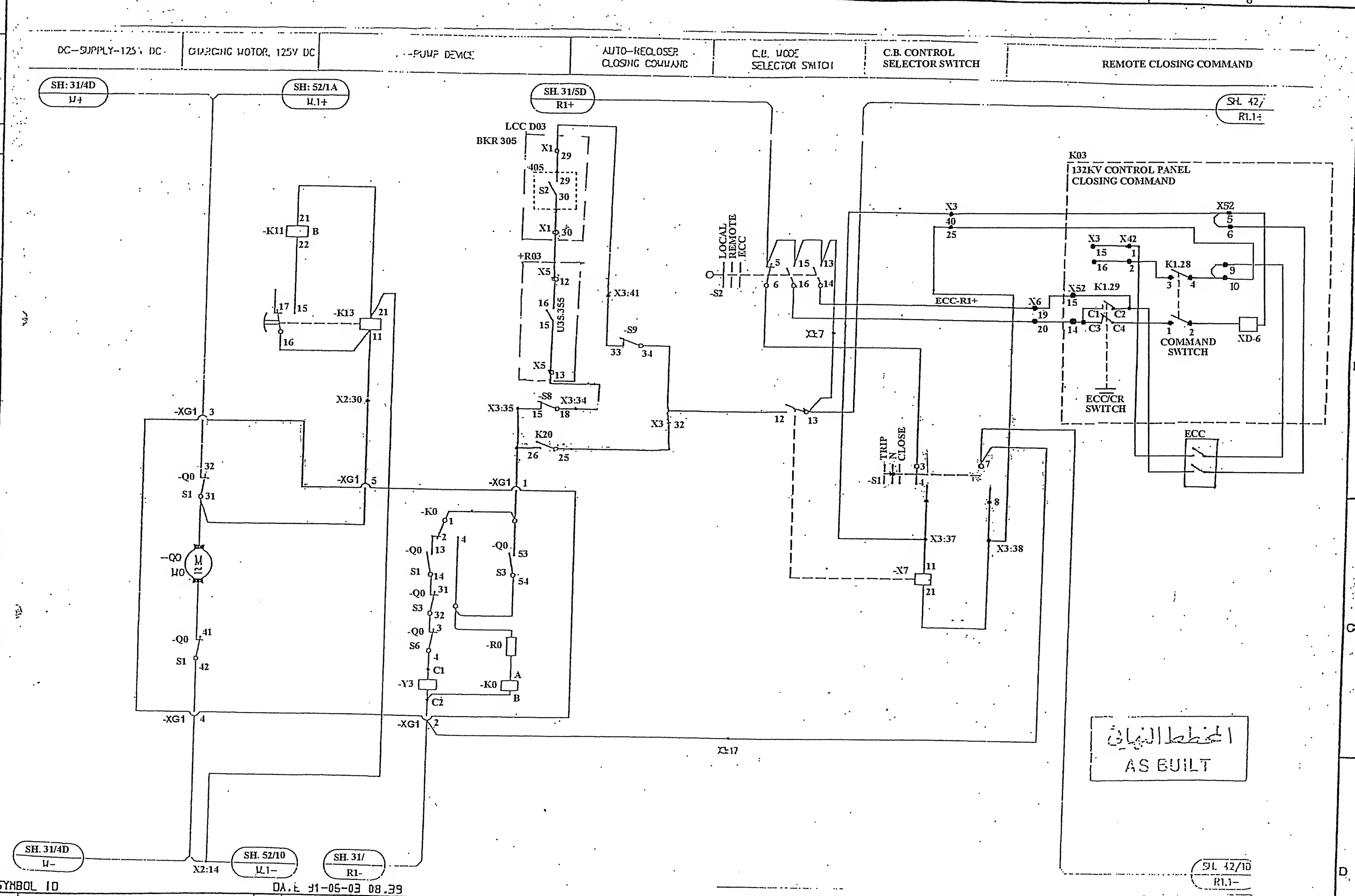


SYMBOL

DATE 91-06-03 08.39

1	AS-BUILT	LS	91-21	=3 132/33kV GRID TRANSFORMER-1 BREAKER-305 TRIPPING COIL-2 =GT1	Design checked by B NILSSON Drawing checked by S STRIDSMAN Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR

Sheet 143 Cont. 144



SYMBOL ID

DATE 91-05-03 08.39

1	AS-BUILT	LS	91-21
Rev Ind	Revision	Appd	Year Week

=3

132/33kV GRID TRANSFORMER-1
BEAKER-375

=GT1

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR TCF 90 08

L 9743.1017
XL 824 028-FBR

Sheet 144
Cont 145
Rev Ind 1

المخطط النهائي
AS BUILT

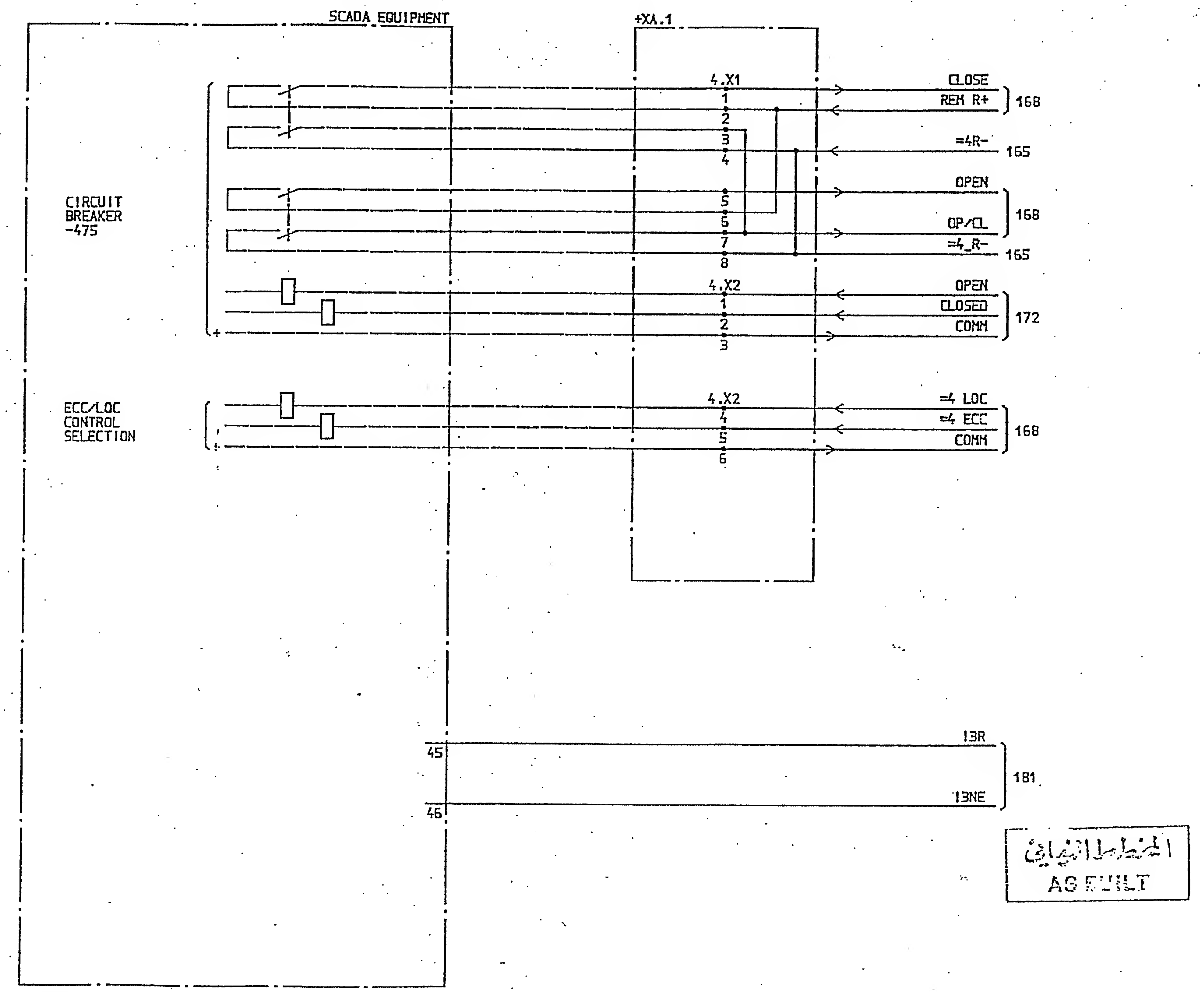
SYMBOL ID /D:XL824028-FBR:151/0 DATE 91-06-03 08.39

1	AS BUILT	LS	91 21	=4 33/13,8kV TRANSFORMER BAY T12 LIST OF CONTENTS	Design checked by B NILSSON Drawing checked by L SVENSSON Drawn by PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TOCF 90 36

L 9743.1017
XL 824-028-FBR

Sheet 151, Cont 162, Rev 1



SYMBOL ID /D:XL824028-FBR:162/0

DATE 91-06-03 08.39

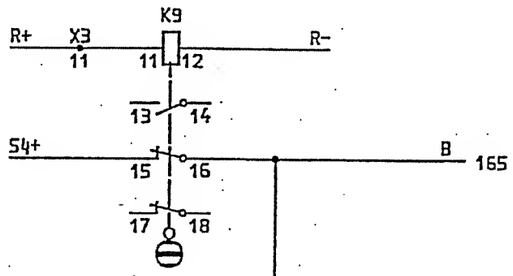
Rev Ind	Revision	Appd	Year Week		Design checked by		Sheet
1	AS BUILT	LS	91 21	=4 33/13,8kV TRANSFORMER BAY T12 SCADA INTERFACE EQUIPMENT	B NILSSON / Drawing checked by L SVENSSON / Drawn by PN	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TCF 90 10	L 9743.1017 XL 824 028-FBR — Sheet 162, Cont 165, Rev Ind 1

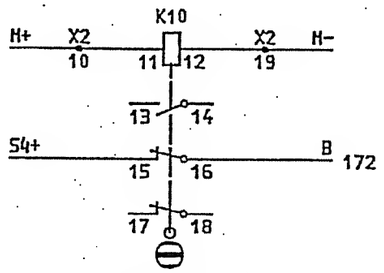
+HA.8

SEE SHEET
-FBB:361

65.10 33kV PROT FAULTY
265.10 33kV PROT FAULTY
X6
34

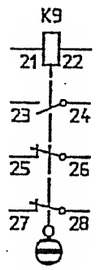
LOSS OF DC
SUPPLY R+/-



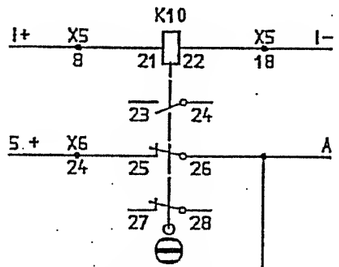


LOSS OF DC
SUPPLY H+/-

A
178

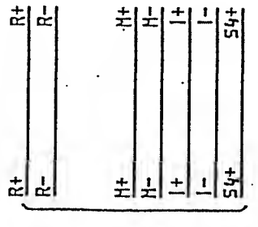


SPARE



LOSS OF DC
SUPPLY I+/-

33kV DC FAIL
265.10 33kV DC FAIL
X6
25

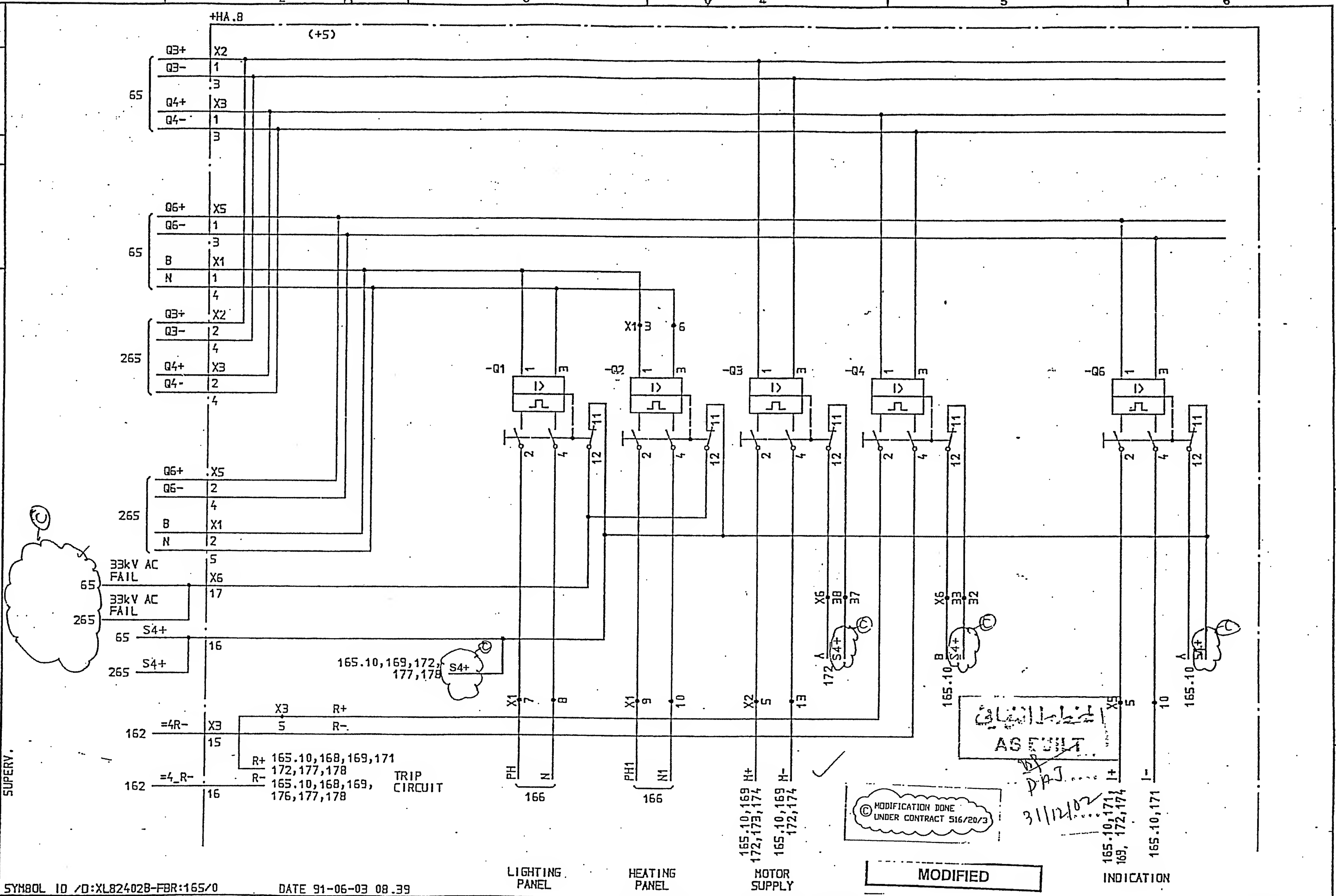


المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:165.10/0 DATE 91-06-03 08.40

Design checked by: B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA			L 9743.1017	Sheet 165.10
Drawing checked by: L SVENSSON				XL 824 028-FBR	Cont 166
Drawn by: PN	ABB HV SWITCHGEAR	Dept TDCF	Year Week 90 36		
1 AS BUILT — LS — 91 21	=4 33/13,8kV TRANSFORMER BAY T12 DC AUX. VOLTAGE SUPPLY				

ABB



SYMBOL ID /D:XL824028-FBR:165/0 DATE 91-06-03 08.39

2	AS BUILT	LS	91 21	=4 33/13,8kV TRANSFORMER BAY T12 DC AUX. VOLTAGE SUPPLY

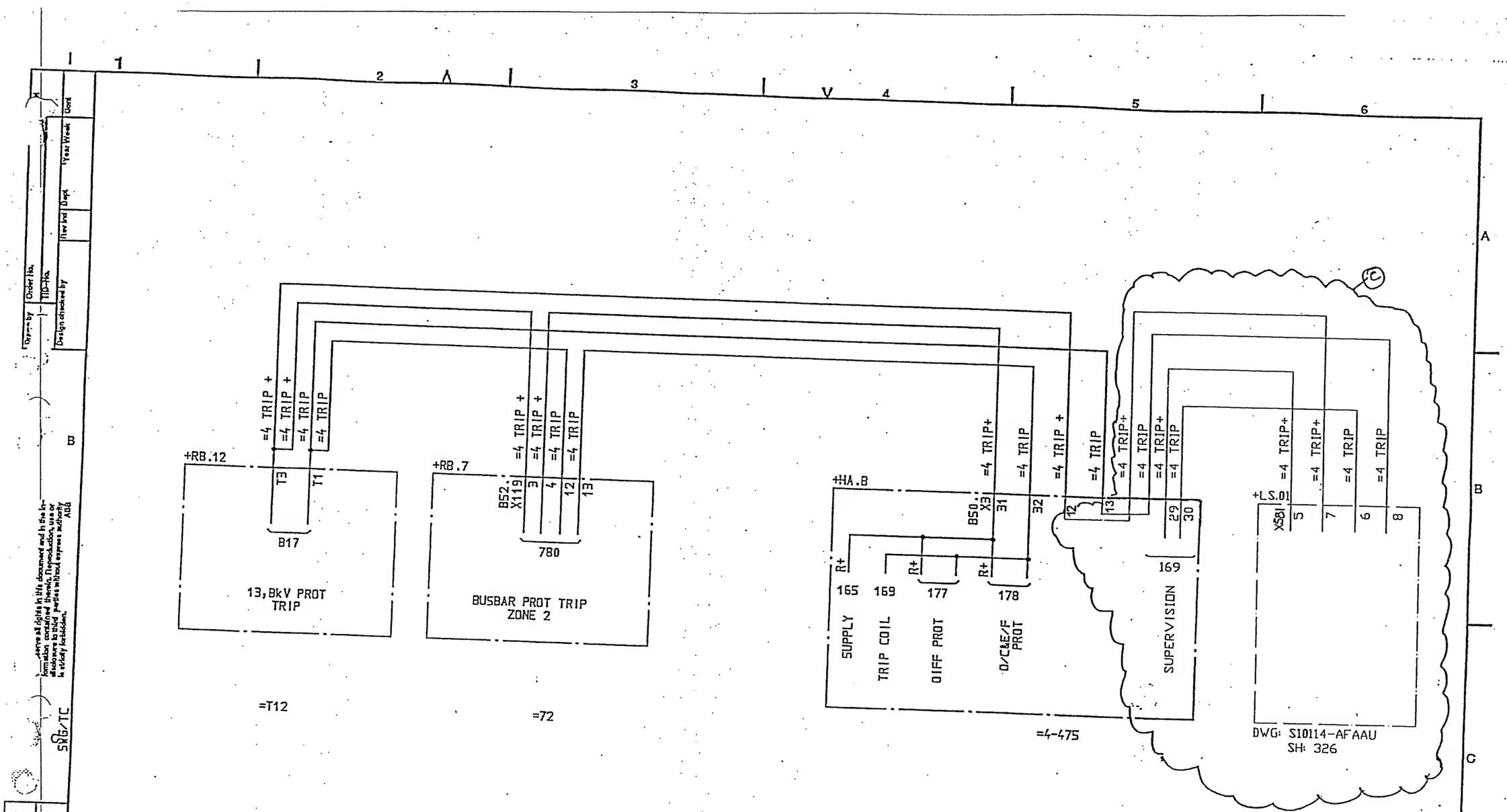
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

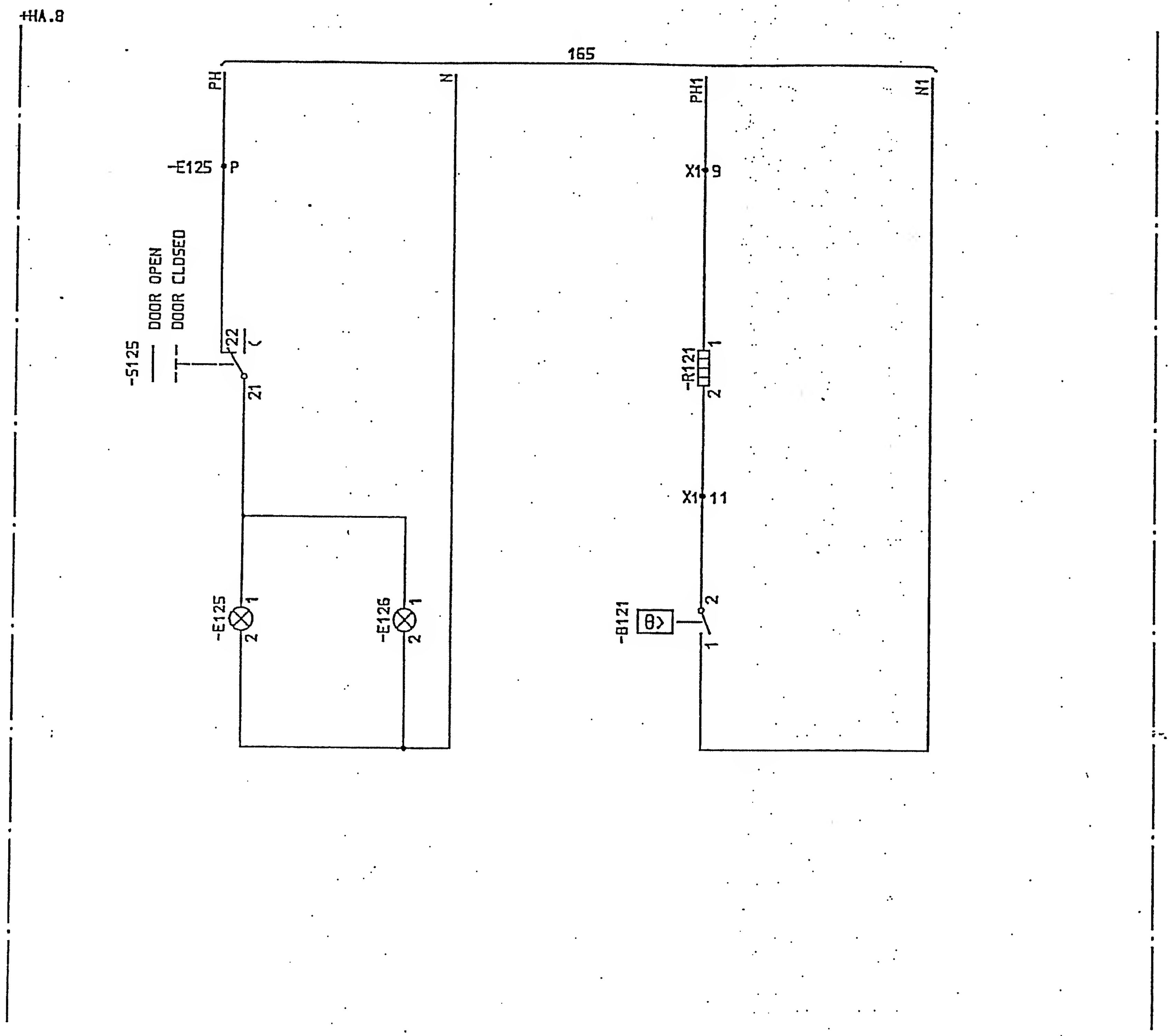
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 165
Rev Ind: 02
Cont: 165.10


+RB.12
=4 TRIP +
=4 TRIP +
=4 TRIP
=4 TRIP
T3
T1
B17
13,8kV PROT TRIP
=T12
+RB.7
B52.
X119
3
4
12
13
780
BUSBAR PROT TRIP ZONE 2
=72
+HA.B
B50.
X3
31
32
=4 TRIP+
=4 TRIP
R+
165
169
177
178
SUPPLY
TRIP COIL
DIFF PROT
O/C&E/F PROT
=4-475
12
13
29
30
169
SUPERVISION
+LS.01
X5B1
5
7
6
8
DWG: S10114-AFAAU
SH: 326
SYMBOL ID /D:XL824028-FBR:169.10/0
DATE 91-06-03 08.40
1
AS BUILT
LS
91 21
=4
33/13,8kV TRANSFORMER BAY T12:
PROTECTION
TRIP CIRCUIT
B NILSSON
L SVENSSON
PN
MODIFIED
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
168.10
169
MODIFICATION DONE UNDER CONTRACT 516/20/3
31/12/10
AS BUILT



AS BUILT

SYMBOL ID /D:XL824028-FBR:166/0 DATE 91-06-03 08.40

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=4
33/13,8kV TRANSFORMER BAY T12
HEATER AND LIGHT

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

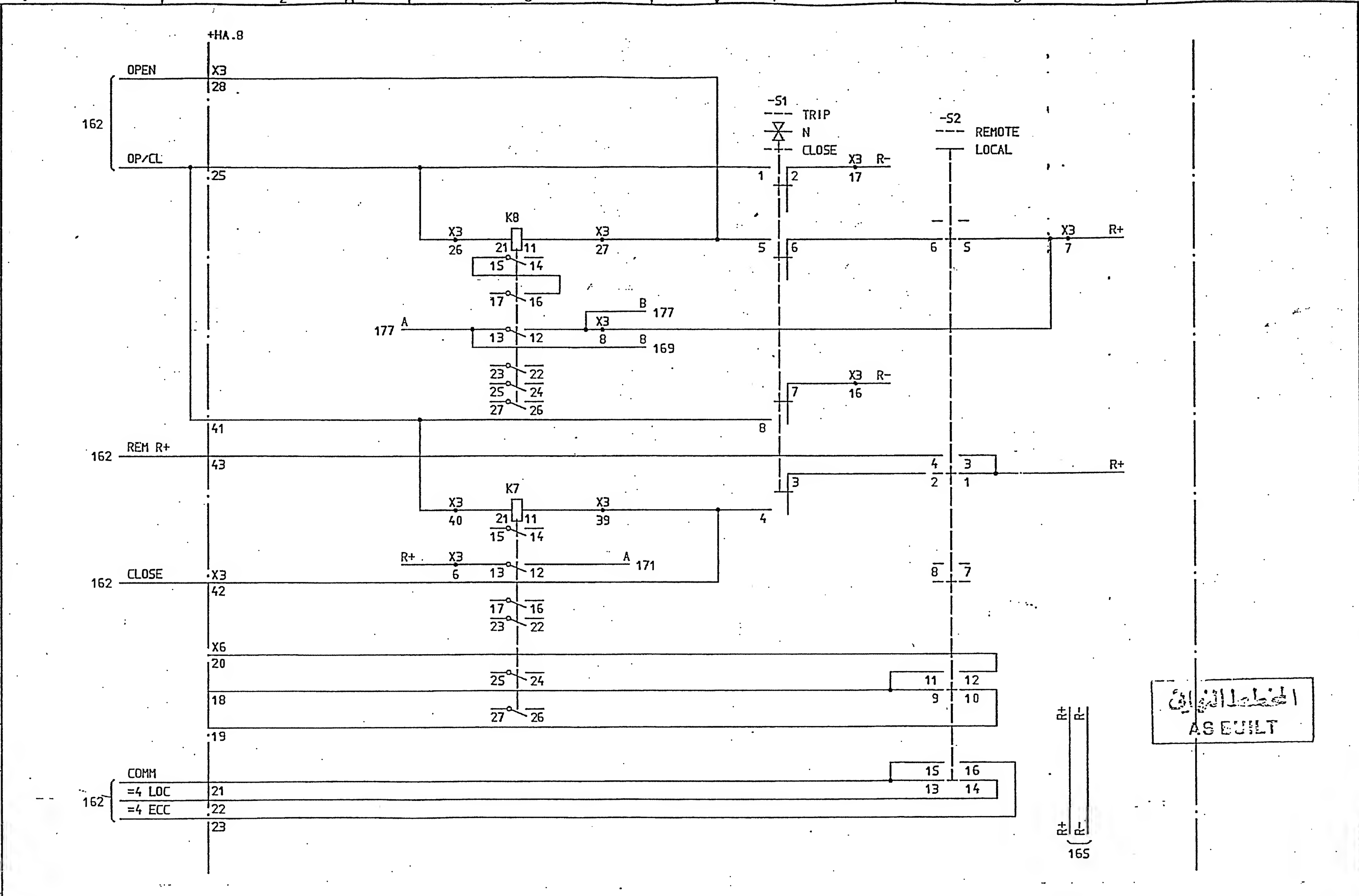
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 166
Cont: 168
Rev Ind: 1



SYMBOL ID /D:XL82402B-F8R:168/0 92-07-02 18.53

Rev Ind	Revision	Appd	Year Week				
2	SCECO SNAG	LS	92 26	=4 33/13,8kV TRANSFORMER BAY T12 C.B SELECTOR SWITCHES	Design checked by: B NILSSON; Drawing checked by: L SVENSSON; Drawn by: PN	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR; Iss by Dept: TDCF; Year Week: 90 36	L 9743.1017 XL 824 028-FBR
1	AS BUILT	LS	91 21				

Rev Ind: 2 Lang Sheet: 168 Cont: 168.10

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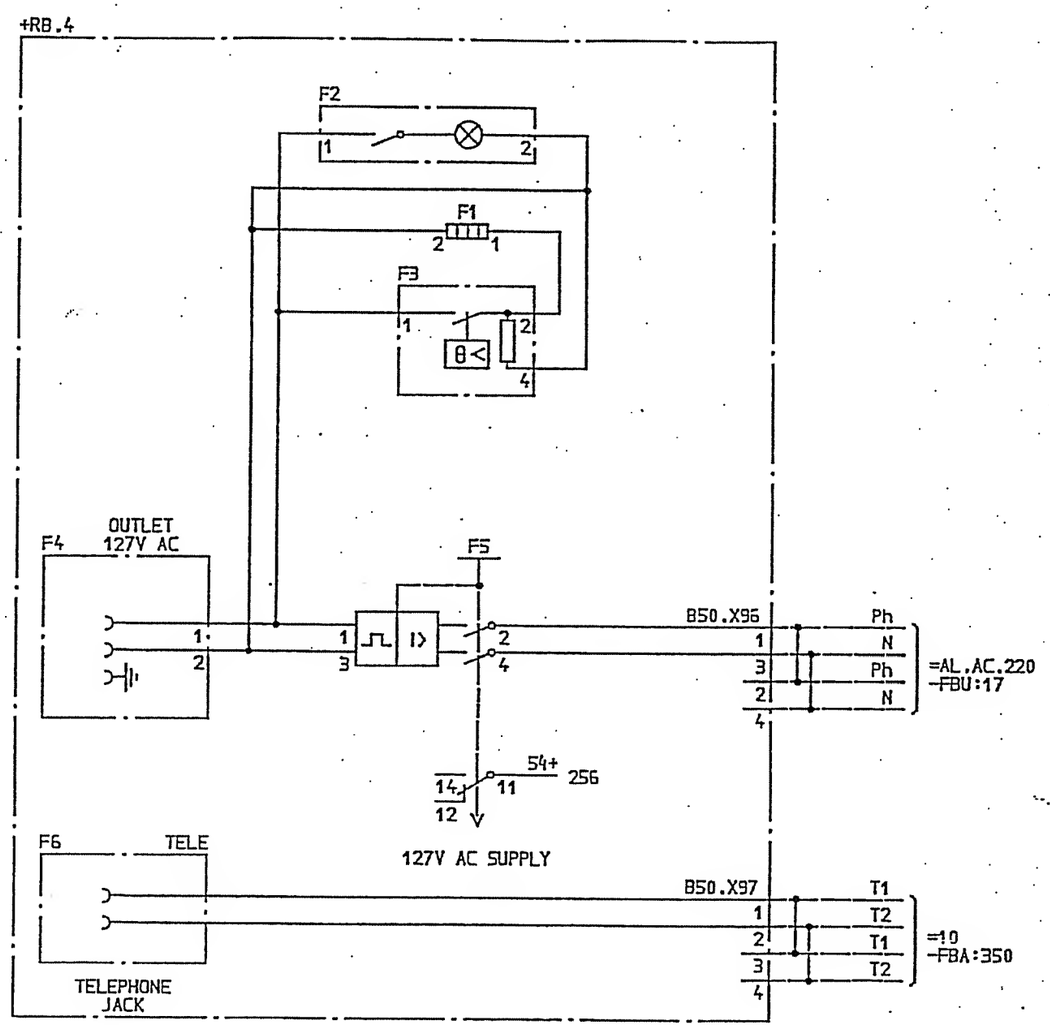
SNG/TC



المخطط النهائي
AS BUILT

SYMBOL ID :D:XL824028-FBR:254/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE AC AND TELEPHONEJACKET CIRCUITS VOLTAGE DISTRIBUTION	

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: GH

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Init by Dept: TCF
Year Week: 90 08

L 9743.1017
XL 824 028-FBR

New Ind: 1
Sheet: 254
Cont: 255

ABB

+RB.4

U35.101

1

ON

OFF

R+ 265 R-

850.X91

1

3

256 R+

256 R-

1 2

3 4

5 6

7 8

9 10

P+

P-

256

51+

PROTECTION SUPPLY FAULTY LOSS OF P±

113A

12 11

P+ SUP

P- SUP

256

PROTECTION SUPPLY P± 125DC

ANN

55 33kV PROT FAULTY

128 33kV PROT FAULTY

850.X41

21

Z< PROT FAULTY (FPFM) 283

O/C-E/F PROT FAULTY (2-50/51+50/51) 287

13 14 S4+

15 16

17 18

113B

22 21

23 24

25 26

27 28

S4+

S4+

256

المخطط النهائي

AS BUILT

SYMBOL ID /O:XLB2402B-FBR:255/0 DATE 91-06-04 09.07

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6

33kV INTERCONNECTOR LINE

PROTECTION SUPPLY

VOLTAGE DISTRIBUTION

Design checked by: B NILSSON

Drawing checked by: J SKOVGAARD

Drawn by: IÅ

CIRCUIT DIAGRAM

S/S 8501 132/33kV

SCECO CENTRAL SAUDI ARABIA

Issued by Dept: TOCF Year Week: 90 16

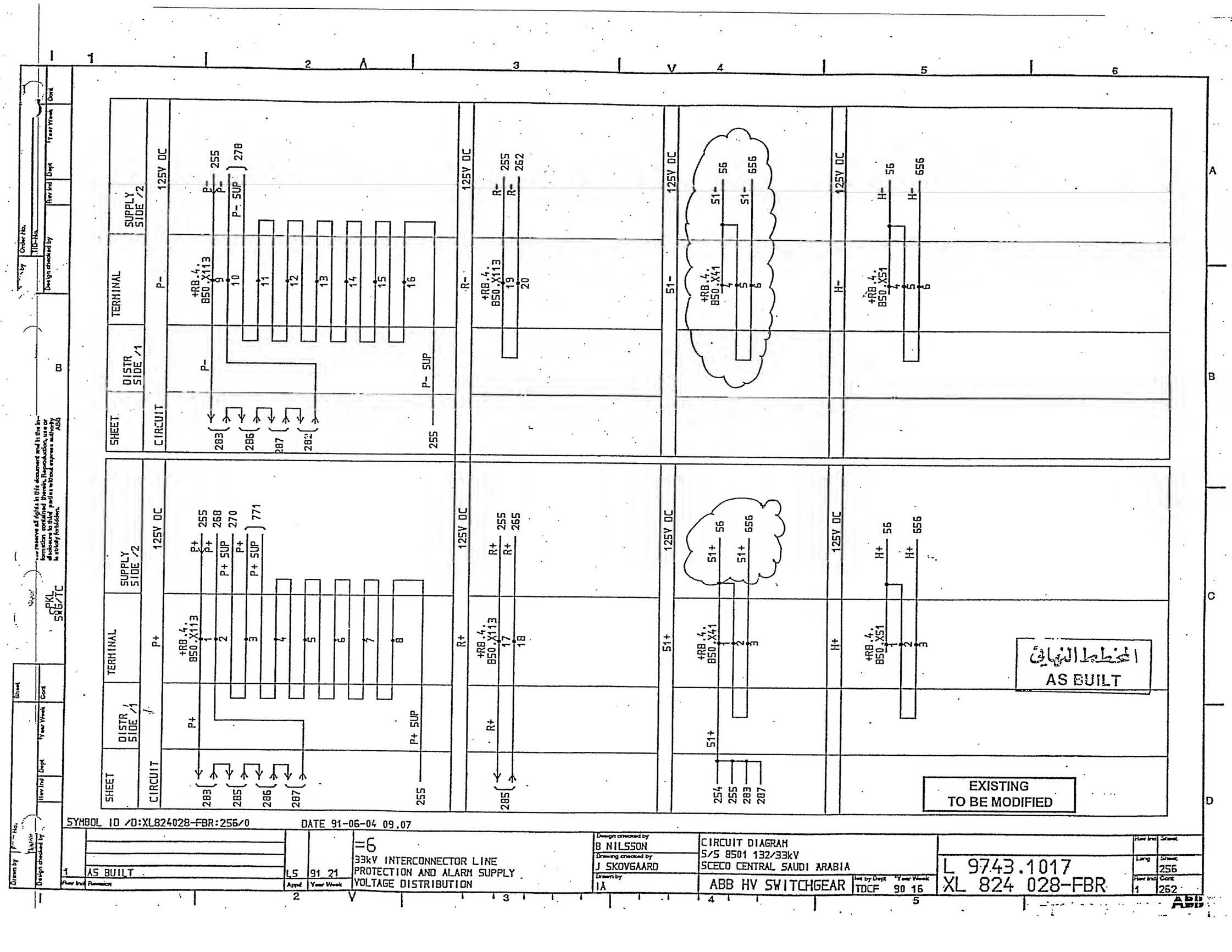
L 9743.1017

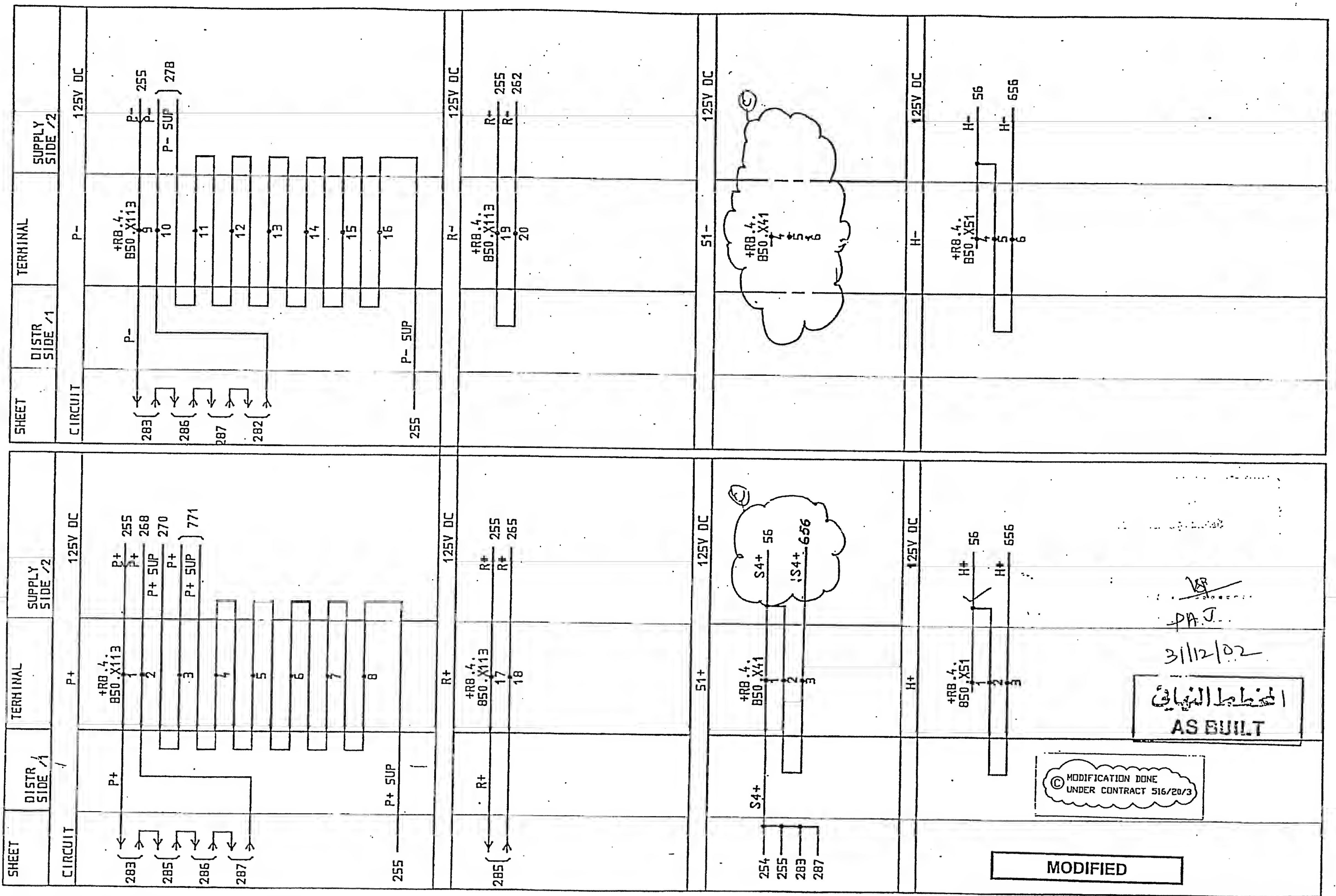
XL 824 028-FBR

Rev Ind: 1 Sheet: 256

Lang: Sheet: 255

ABB

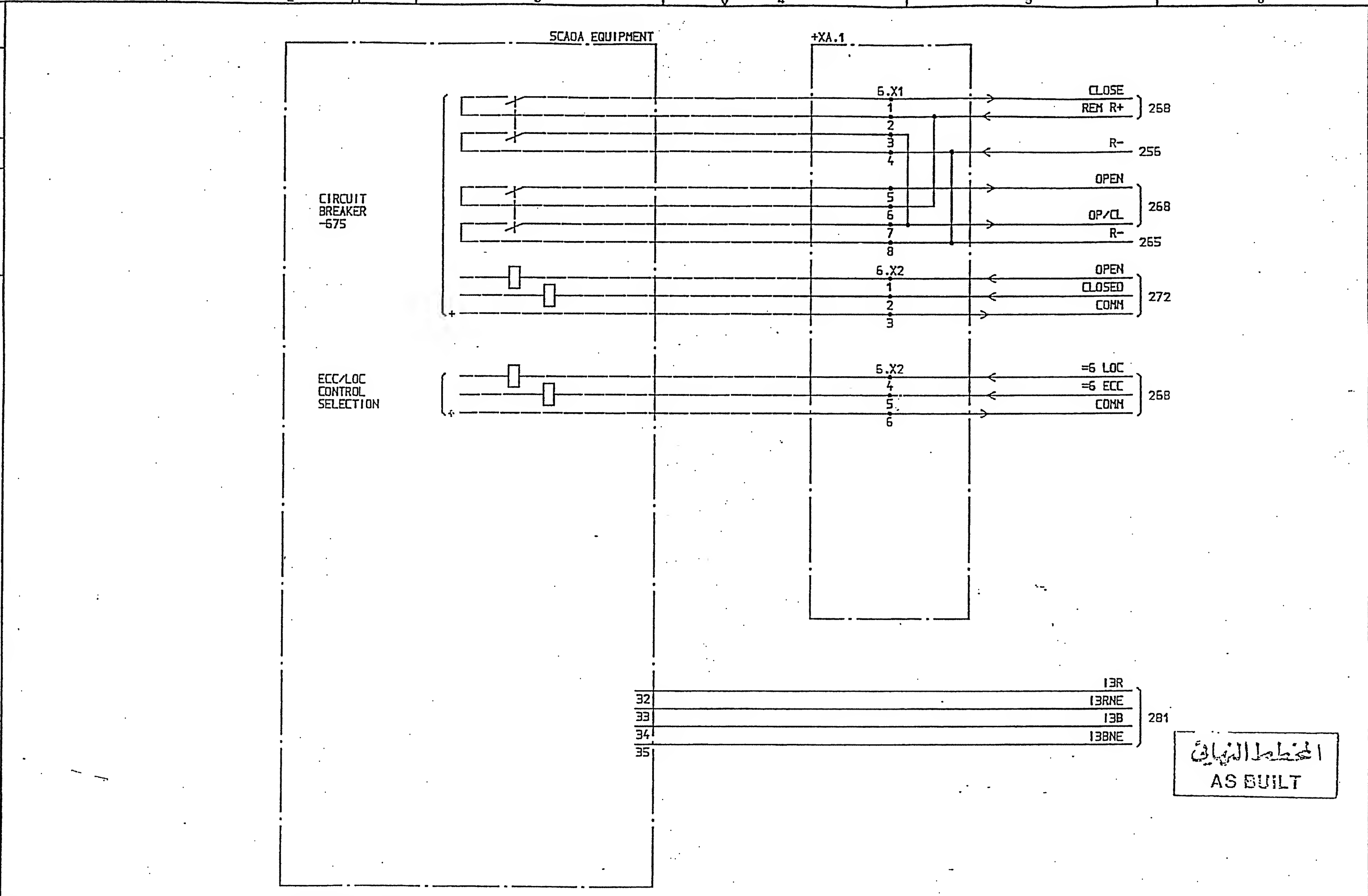

SHEET
CIRCUIT
TERMINAL
SUPPLY SIDE /2
DISTR SIDE /1
125V DC
P-
R-
S1-
H-
P+
R+
S1+
H+
+RB.4. B50.X113
+RB.4. B50.X41
+RB.4. B50.X51
P- SUP
P+ SUP
255
278
262
56
656
283
286
287
282
268
270
771
265
285
254
EXISTING TO BE MODIFIED
AS BUILT
SYMBOL ID /D:XL824028-FBR:256/0
DATE 91-06-04 09.07
AS BUILT
LS
91 21
H6
33kV INTERCONNECTOR LINE
PROTECTION AND ALARM SUPPLY
VOLTAGE DISTRIBUTION
B NILSSON
J SKOVGAARD
IA
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 16
L 9743.1017
XL 824 028-FBR
256
262



SYMBOL ID /D:XL824028-FBR:256/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE PROTECTION AND ALARM SUPPLY VOLTAGE DISTRIBUTION	Design checked by B NILSSON; Drawing checked by J SKOVGAARD; Drawn by IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA; ABB HV SWITCHGEAR; Iss by Dept TOCF; Year Week 90 16	L 9743.1017 XL 824 028-FBR; Sheet 256; Cont 262; Rev Ind 1
Rev Ind	Revision	Appd	Year Week				

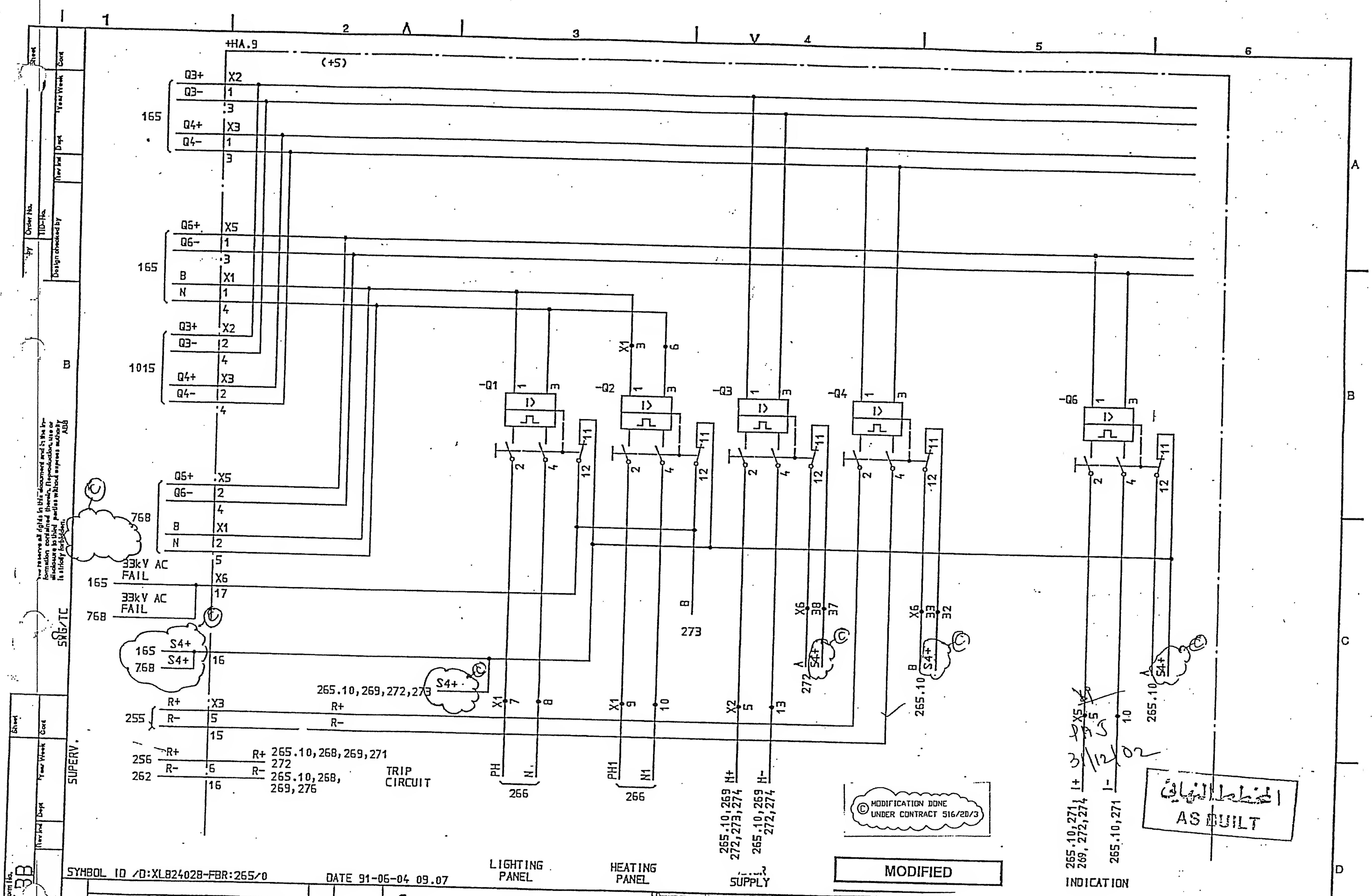
ABB



SYMBOL ID /D:XL824028-FBR:262/0 DATE 91-05-04 09.07

Rev Ind	Revision	Appd	Year Week						
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE SCADA INTERFACE EQUIPMENT	Design checked by: B NILSSON Drawing checked by: S STRIDSMAN Drawn by: IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	Iss by Dept: TCF Year Week: 90 10	L 9743.1017 XL 824 028-FBR	Rev Ind: 1 Sheet: 262 Cont: 265

ABB



SYMBOL ID /D:XL824028-FBR:265/0

DATE 91-06-04 09.07

2	AS BUILT	LS	91 21	
Rev Ind	Revision	Appd	Year Week	

=6
33kV INTERCONNECTOR LINE
DC AUX. VOLTAGE SUPPLY

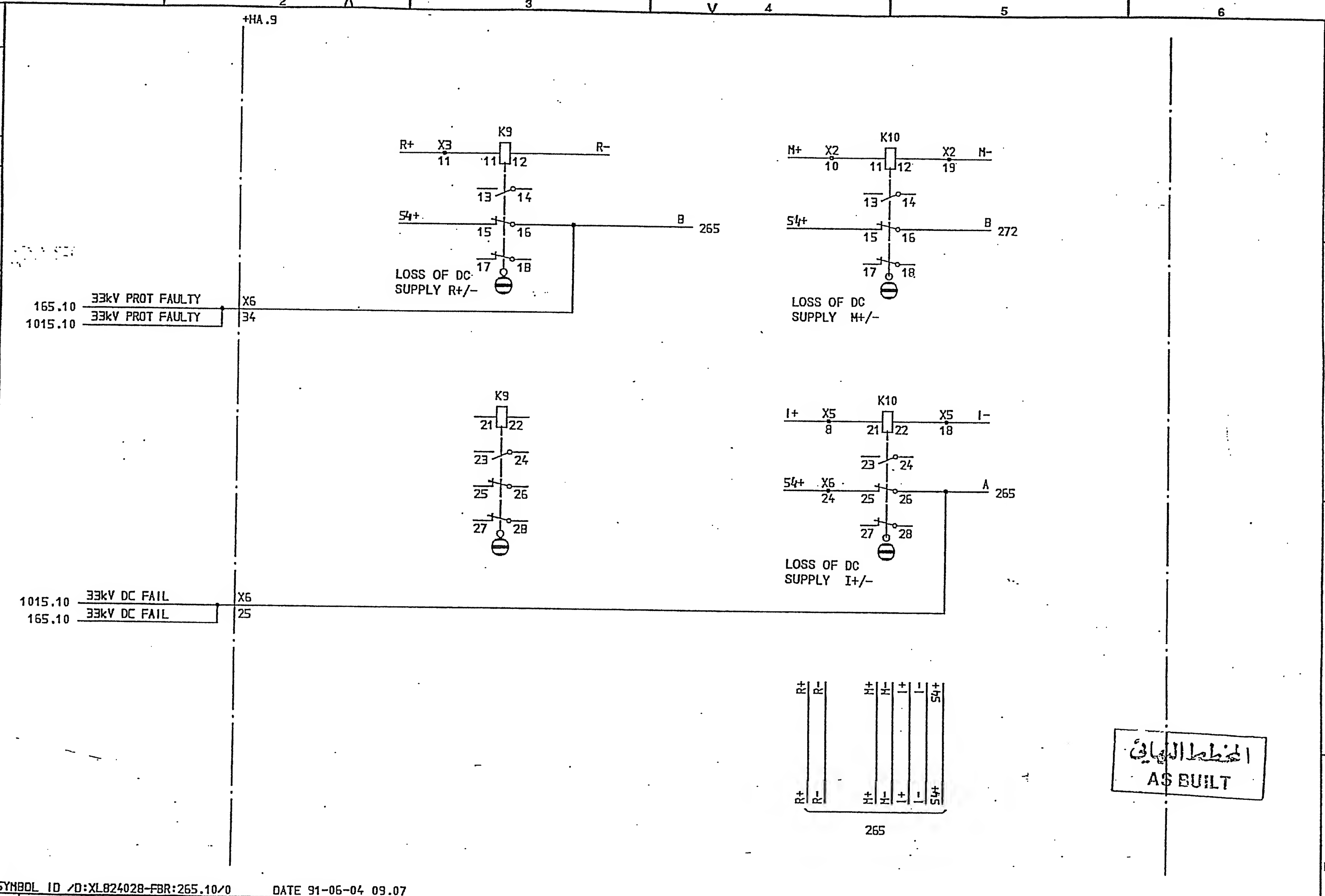
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Dept: TOCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet 265 — Rev Ind -2 — Cont 265.10



SYMBOL ID /D:XL824028-FBR:265.10/0 DATE 91-06-04 09.07

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
DC AUX. VOLTAGE SUPPLY

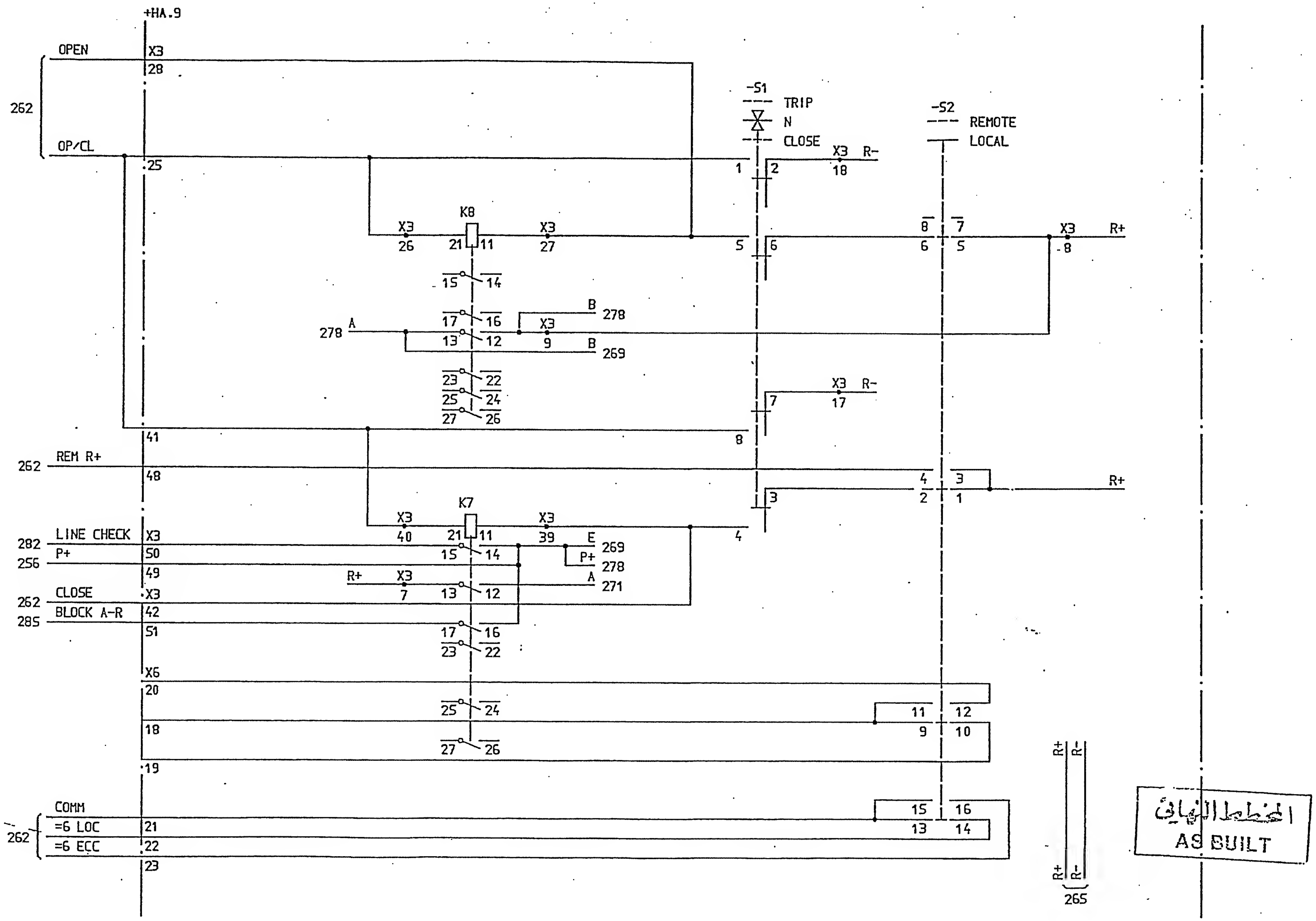
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 265.10 Cont: 266

SRG/TC



SYMBOL ID /D:XL824028-FBR:268/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
C.B SELECTOR SWITCHES

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR. TDCF 90 36

L 9743.1017
XL 824 028-FBR

Sheet 268
Cont 268.10
Rev Ind 2

+RB.7

B52 X119 5 =6 TRIP +
6 =6 TRIP +
14 =6 TRIP
15 =6 TRIP

780

BUSBAR PROT TRIP ZONE 2

=72

+HA.9

B50 X3 31 =6 TRIP+
32 =6 TRIP

R+ 265 SUPPLY
R+ 269 TRIP COIL
R+ 278 DIST.PROT
278 O/C&E/F PROT

=6-675

13 =6 TRIP +
14 =6 TRIP+
29 =6 TRIP+
30 =6 TRIP

269 SUPERVISION

+LS.03 X581 9 =6 TRIP+
11 =6 TRIP+
10 =6 TRIP
12 =6 TRIP

DWG: S10114-AFAAU
SH: 326

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PAS
31/12/02

المخطط النهائي
AS BUILT

MODIFIED

SYMBOL ID /0:XL824028-FBR:268.10/0 DATE 91-06-04 09.07

Drawn by: BB	Design by: SK/TC	Form No. A		=6	
1	AS BUILT	L5	91 21	33kV INTERCONNECTOR LINE PROTECTION TRIP CIRCUIT	
Rev Ind	Revision	Appd	Year Week		

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Issued by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1
Sheet: 268.10
Cont: 269

+HA.9

=6 TRIP+ X3 29
268.10 =6 TRIP 30

K5 21 11 16 26 17 25 15 27 18 28 R+ R-

I+

268.10 =6 TRIP X3 32

268 B

K6 21 11 16 26 17 25 15 27 18 28 R+ R-

270 C

X3 33

R- 23 19

X2 30

M+ 3

M- 4

K13 11 21 X2 20 X2 14

285 CB READY X3 54

268 E X3 52

K19 12 11 SERV. POS. 171

33KV TRIP CIRCUIT FAULTY
169 1015.10 X6 36

S4+ 14 13 16 15 18 17

R+ R- H+ H- S4+ I+
265

TC FAULTY

K11 M- 21 22 15 16 17 25 26 27 28 25 26 27 15s

51+ 23 C 24 272

CB SPRING UNCHARGED

274 A X2 23

Y1 A1 A2 X2 15 M-

-675 (-QO)

280 R Y B R Y B =72 BUSBAR

XB.F.1.103 SH.81

R- XG1 2 Y3 C2 C1 S5 4 3 S3 32 31 S1 14 13 2 1 4

K0 B A RO 54 53

272 A X2 26 B M+ 25 8

1 16 15 14 13 22 21 14 13

X3 33

R- 23 19

Y9 21 22 C2 C1 44 43 17

X2 30 5

M+ 3 32 31 MO

M- 4 42 41 M

11 12 54 53

A B C

الخط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:269/0 92-09-09 07.33

2.1	SCECO SNAG	LS	92 26	=6	33kV INTERCONNECTOR LINE
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -675	
Rev Ind	Revision	Appd	Year Week		

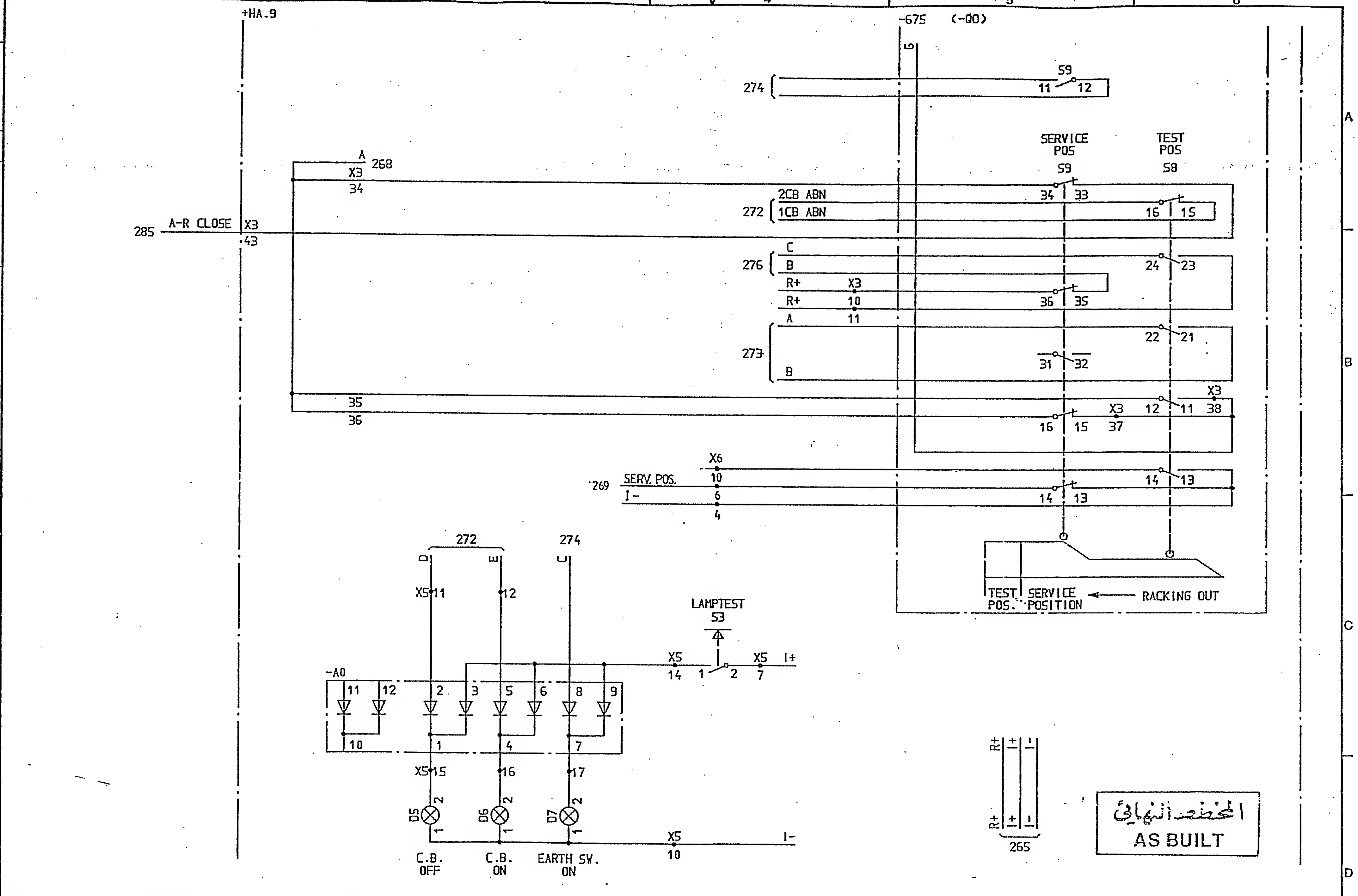
Design approved by: B NILSSON
Drawing approved by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2.1 Sheet: 269 Cont: 270



SYMBOL ID /D:XL824028-FBR:271/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
CIRCUIT BREAKER EQUIPMENT -675

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 271
Rev Ind: 2.1
Cont: 272

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+HA.9

K15
M- X2 17 A2 A1 ON B
32 31
269
K14
M- A2 A1 OFF A

K11
M- X2 18 12 11
S4+ 13 14 B 265.10
17 18
15 16

X2 27
14 13 14 13 X2 9 M+
22 21 22 21
44 43
44 43
D 271 E
S4 53 X5 5 I+
S4 53

172 33kV CB ABNORMAL
1015.10 33kV CB ABNORMAL
X6 39
2CB ABN
1CB ABN
271
A 265
C 269
CB AUX.
I.R. FAULTY

X6
2 64 63
3 64 63
OPEN 1
8 74 73
262 CLOSED
COMM 9 74 73
7
32 31
84 83
84 83

M+ M- R+ I+ S4+
M+ M- R+ I+ S4+
265

المخطط النهائي
AS BUILT

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ABB

SYMBOL ID /D:XL824028-FBR:272/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
CIRCUIT BREAKER EQUIPMENT -675

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8S01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2 Sheet 272 Cont 273

+HA.9

K16 A1 A2

A M- X9 5 7

M+ X2 7 13 14 C 274

22 21

34 33

44 43

173

C X9 2 X9 A 9 271

B 3

6

8

X0 1 2 3 4

SECONDARY PLUG & SOCKET

B 1 B 10 271

1024 A 4

-QB

U1R XB 1 1 XB U1R 2 9

U1Y 3 3 U1Y 4 10

173 U1B 5 5 U1B 6 11 281

U1NE 7 U1NE

S4+ 11 12 B 265

U1R 2

U1Y 4

771 U1B 6

U1NE 8

H+ S4+

H+ S4+

265

المخطط النهائي
AS BUILT

SYH80L ID /D:XL824028-FBR:273/0 DATE 91-06-06 12.05

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE.
INTERLOCKING RELAY FOR C.B. TRUCK

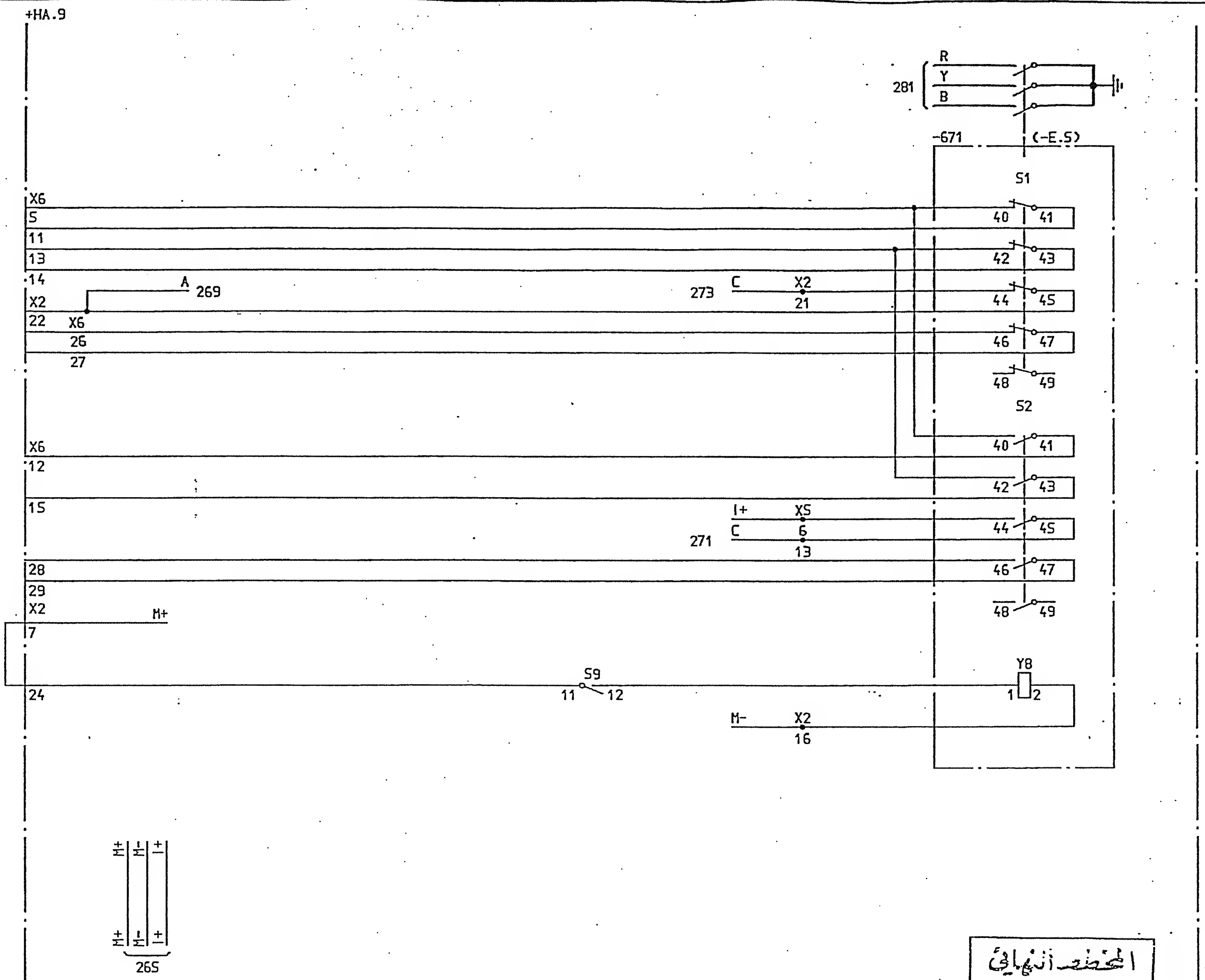
Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Use by Dept. TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 1 Sheet 273 Cont 274

ABB



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:274/0   92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
EARTH SWITCH EQUIPMENT -671

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF   Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 274
Rev Ind: 2
Cont: 276

SWG/TC

+HA.9

BUS DIFF

X3 C
22
271 TEST POS

K12

R- 211 212 B 20 SERVICE POS

121 122

14R X7 16 113 114 14R
14Y 17 115 116 14Y
14B 18 117 118 14B
14NE 19 123 124 14NE

782 281

213 214
227 228
225 226
223 224

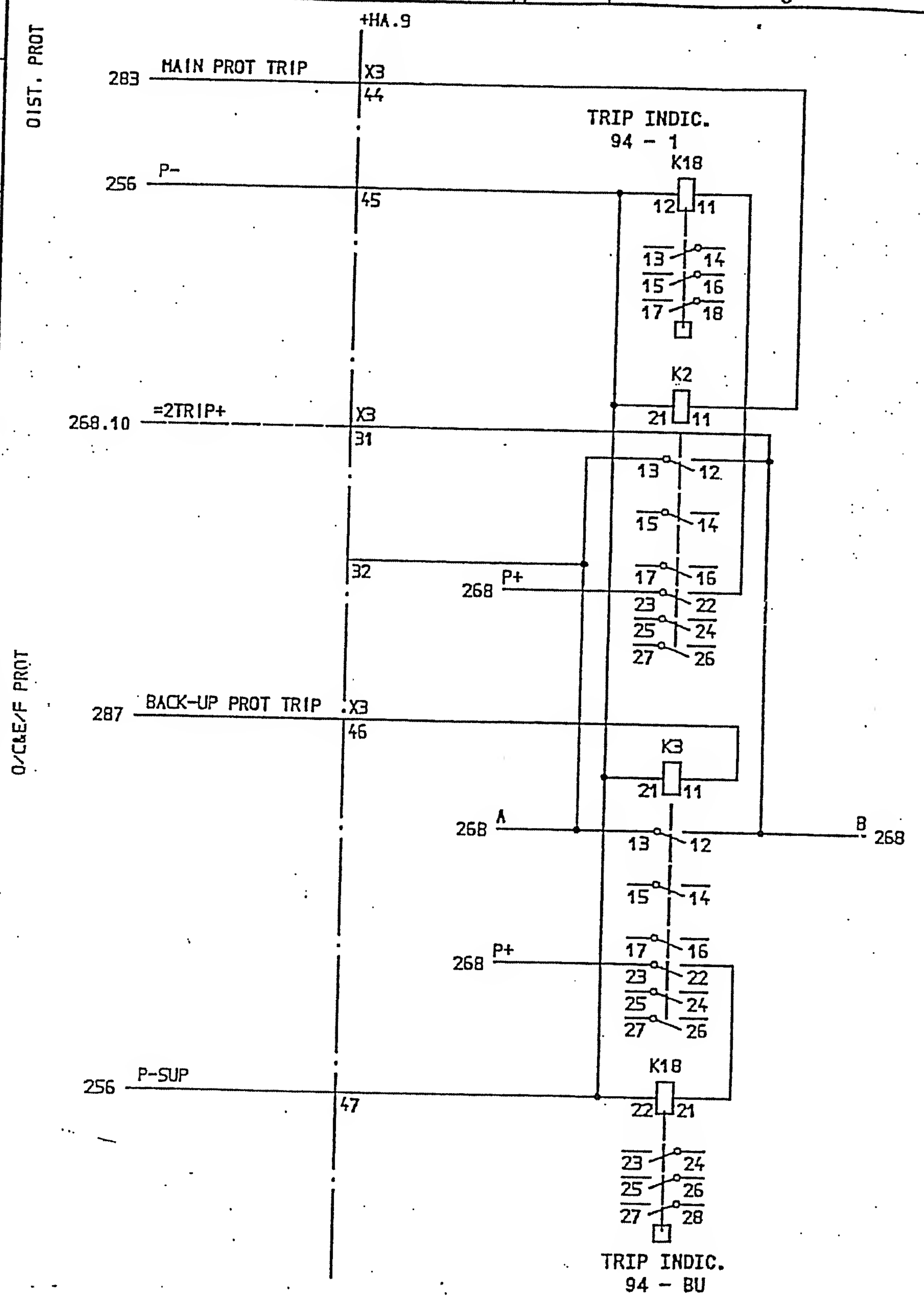
R-
R-
265

الخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:276/0 DATE 91-06-04 09.08

				=6	Design checked by B NILSSON	CIRCUIT DIAGRAM	Rev Ind / Sheet
				33kV INTERCONNECTOR LINE	Drawing checked by L SVENSSON	S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	Lang / Sheet 276
1	AS BUILT	LS	91 21	C.T. SHORTING RELAY	Drawn by SK	ABB HV SWITCHGEAR — Iss by Dept TDCF, Year Week 90 36	L 9743.1017 XL 824 028-FBR — Rev Ind 1, Cont 278
Rev Ind	Revision	Appd	Year Week				

ABB

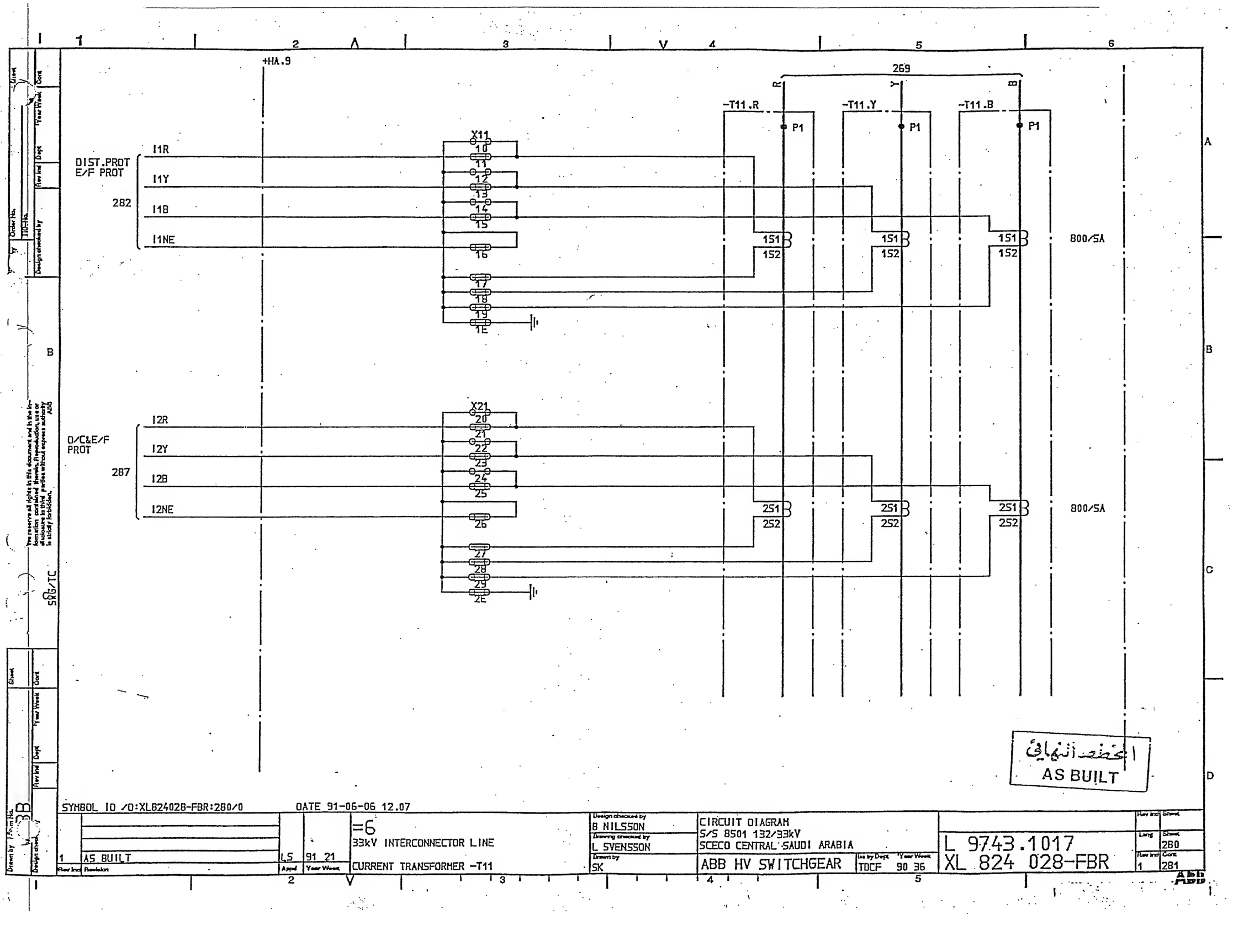


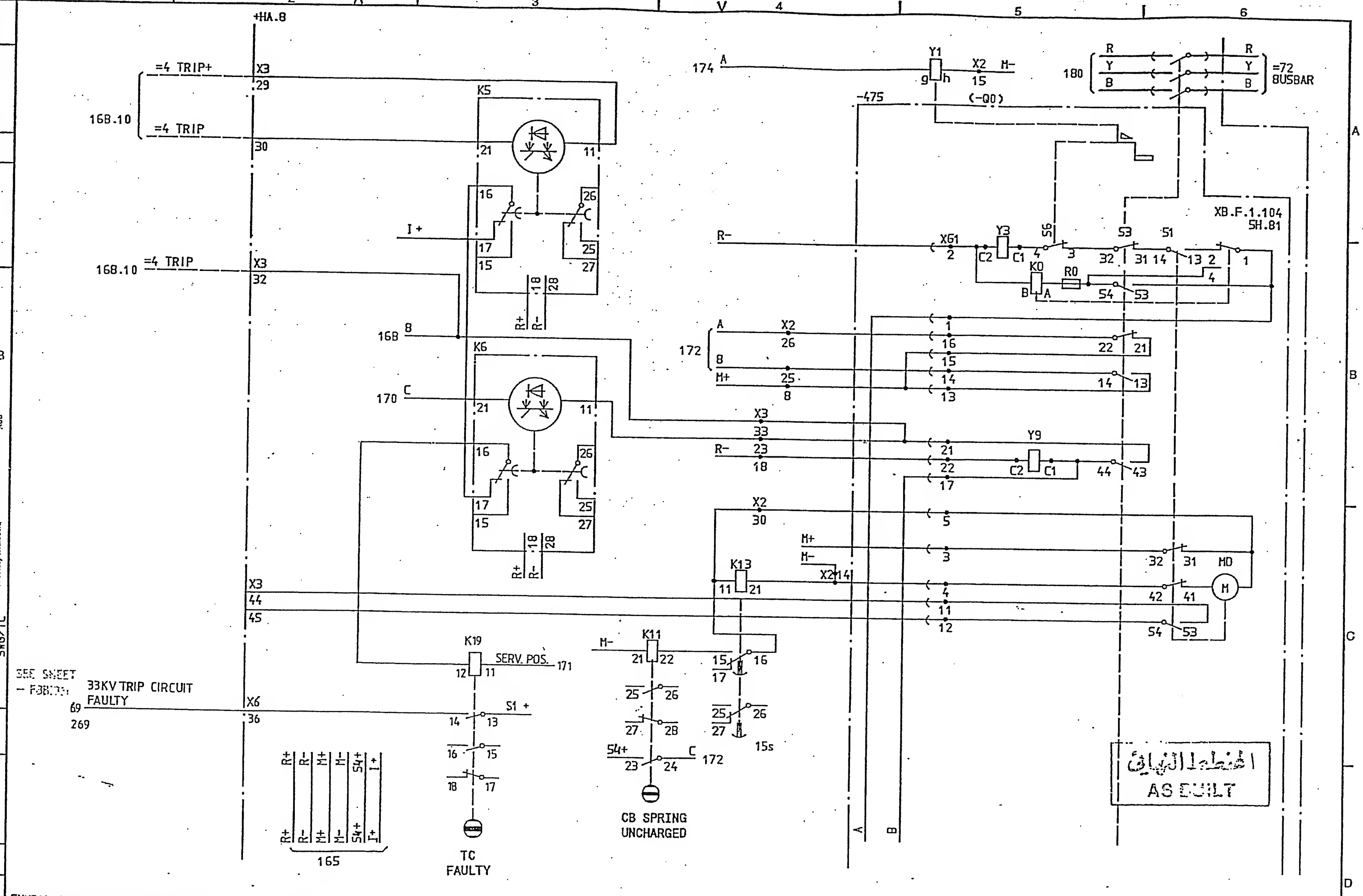
المخطط النهائي
AS BUILT

SYMBOL ID /D:XLB24028-FBR:278/0   92-09-09 07.35

Rev Ind	Revision	Appd	Year Week				
2	SCECO SNAG	LS	92 26	=6	Design checked by: B NILSSON	CIRCUIT DIAGRAM	L 9743.1017
1	AS BUILT	LS	91 21	33kV INTERCONNECTOR LINE	Drawing checked by: L SVENSSON	S/S 8501 132/33kV	XL 824 028-FBR
				TRIP RELAYS 33kV	Drawn by: SK	SCECO CENTRAL SAUDI ARABIA	Sheet 278
						ABB HV SWITCHGEAR — Issued by Dept TDCF, Year Week 90 36	Rev Ind 2, Cont 280

SNG/TC





SYMBOL ID /D:XLB2402B-FBR:169/0 92-07-02 18.53

Rev ind	Revision	Appd	Year Week
2.1	SCECO SNAG.	LS	92 26
1	AS BUILT	LS	91 21

=4
33/13,8kV TRANSFORMER BAY T12
CIRCUIT BREAKER EQUIPMENT -475

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

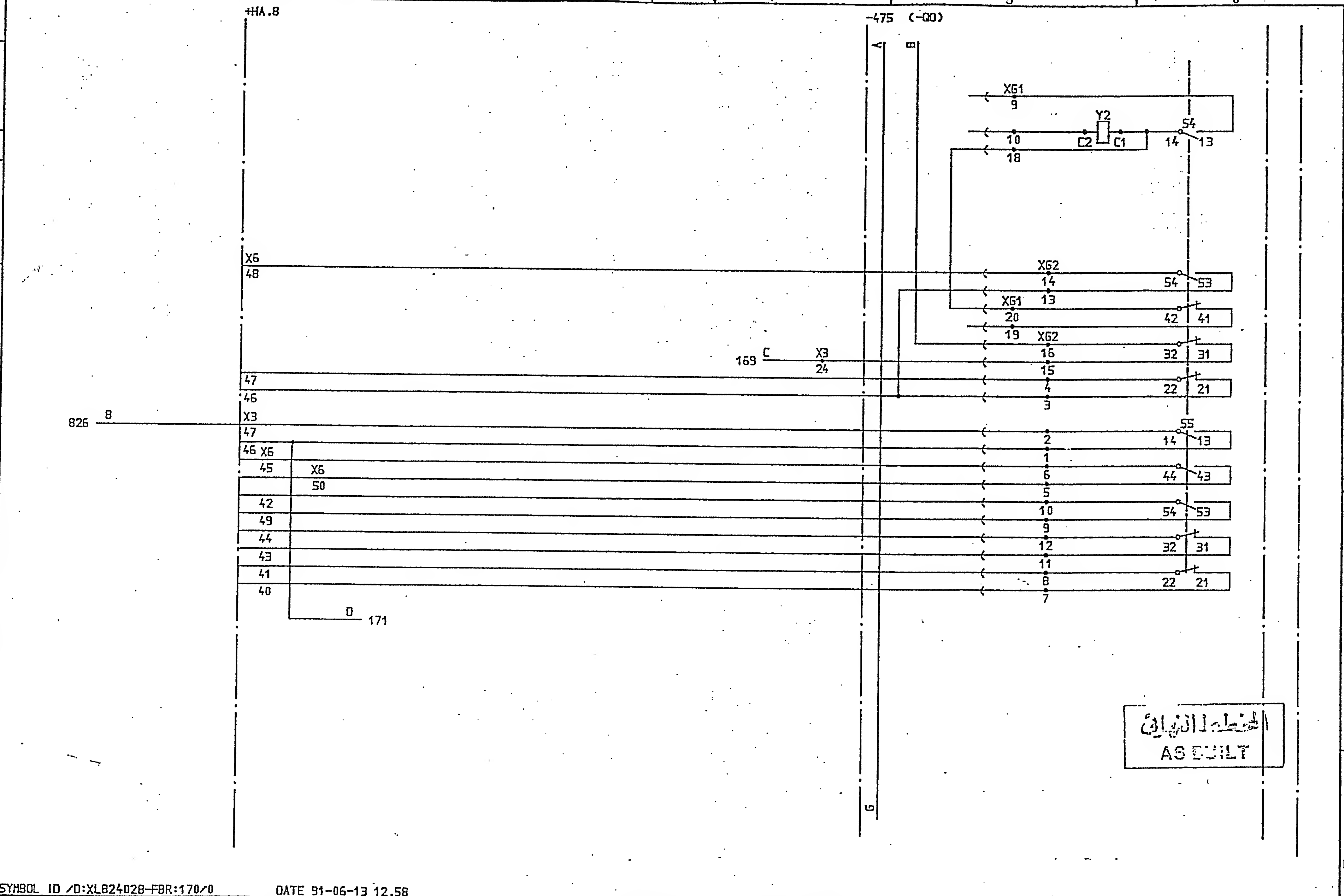
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Lang / Sheet: 169
Rev ind: 2.1 Cont: 170

ABB



SYMBOL ID /D:XL824028-FBR:170/0 DATE 91-06-13 12.58

Rev ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=4
33/13,8kV TRANSFORMER BAY T12
CIRCUIT BREAKER EQUIPMENT -475

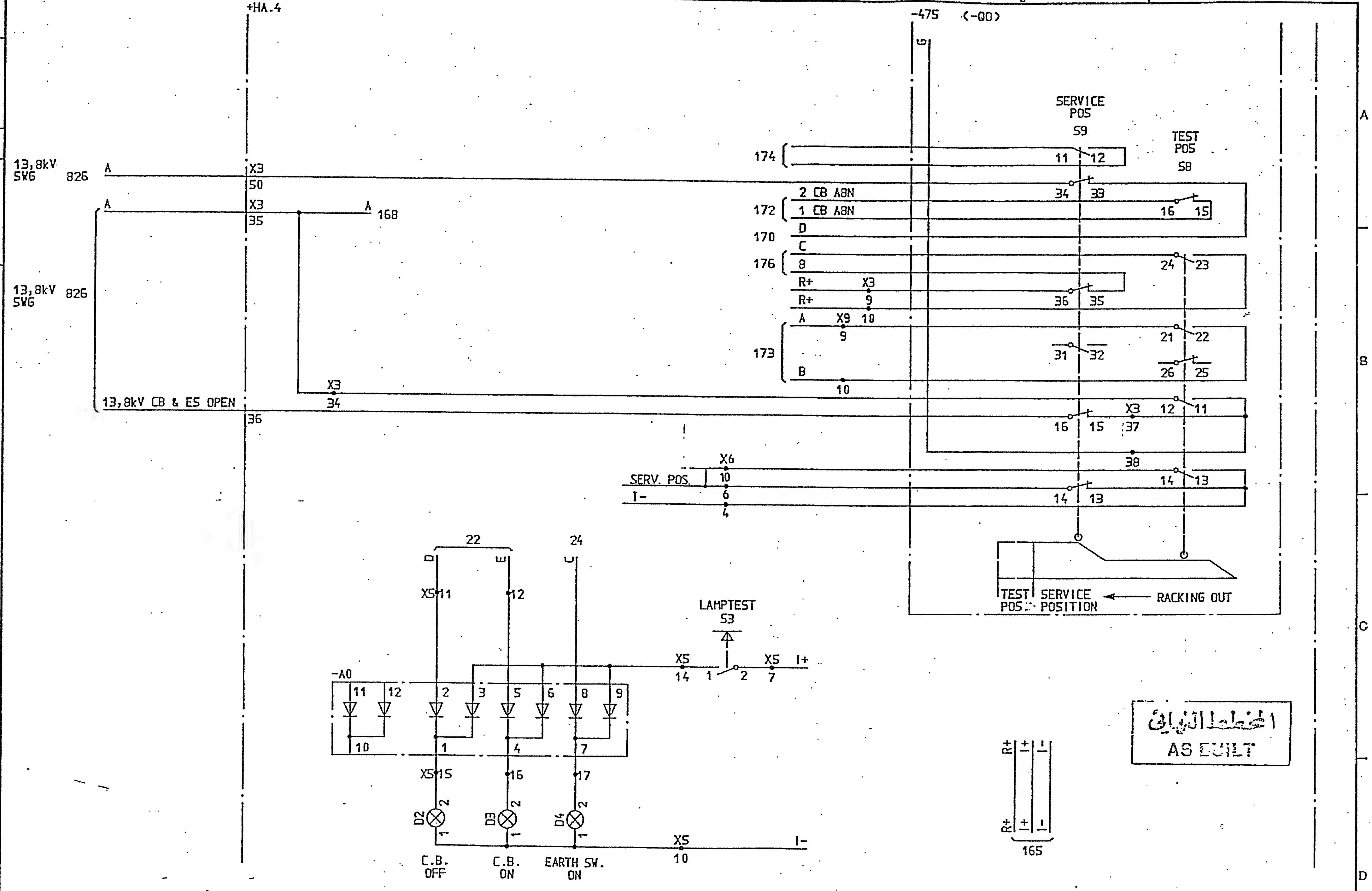
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR | Iss by Dept: TDCF | Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet 170 | Cont 171 | Rev ind 1



SYMBOL ID /D:XL824028-FBR:171/0 92-07-02 18.53

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=4
33/13,8kV TRANSFORMER BAY T12
CIRCUIT BREAKER EQUIPMENT -475

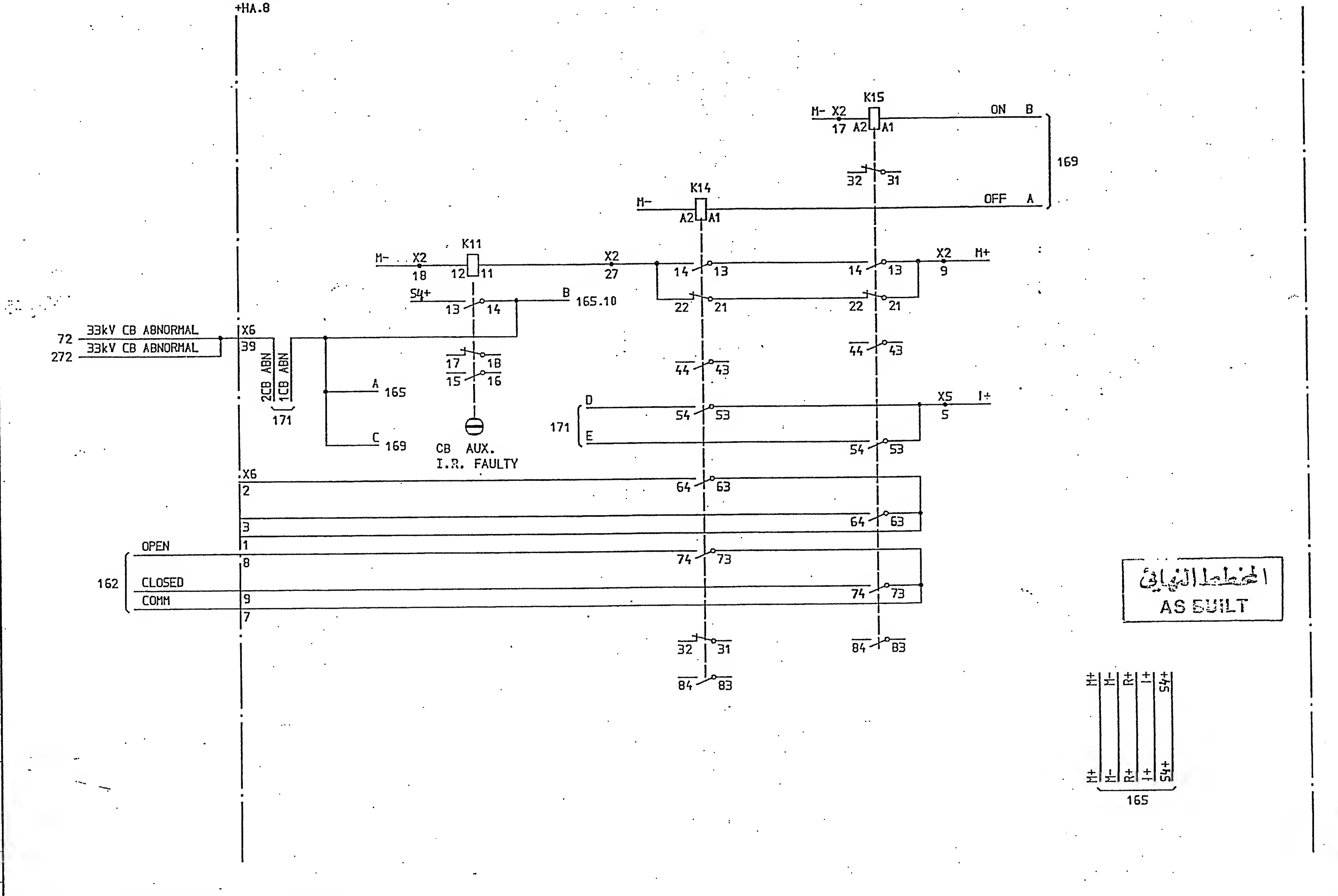
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TOCF | Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2.1 | Sheet: 171 | Cont: 172



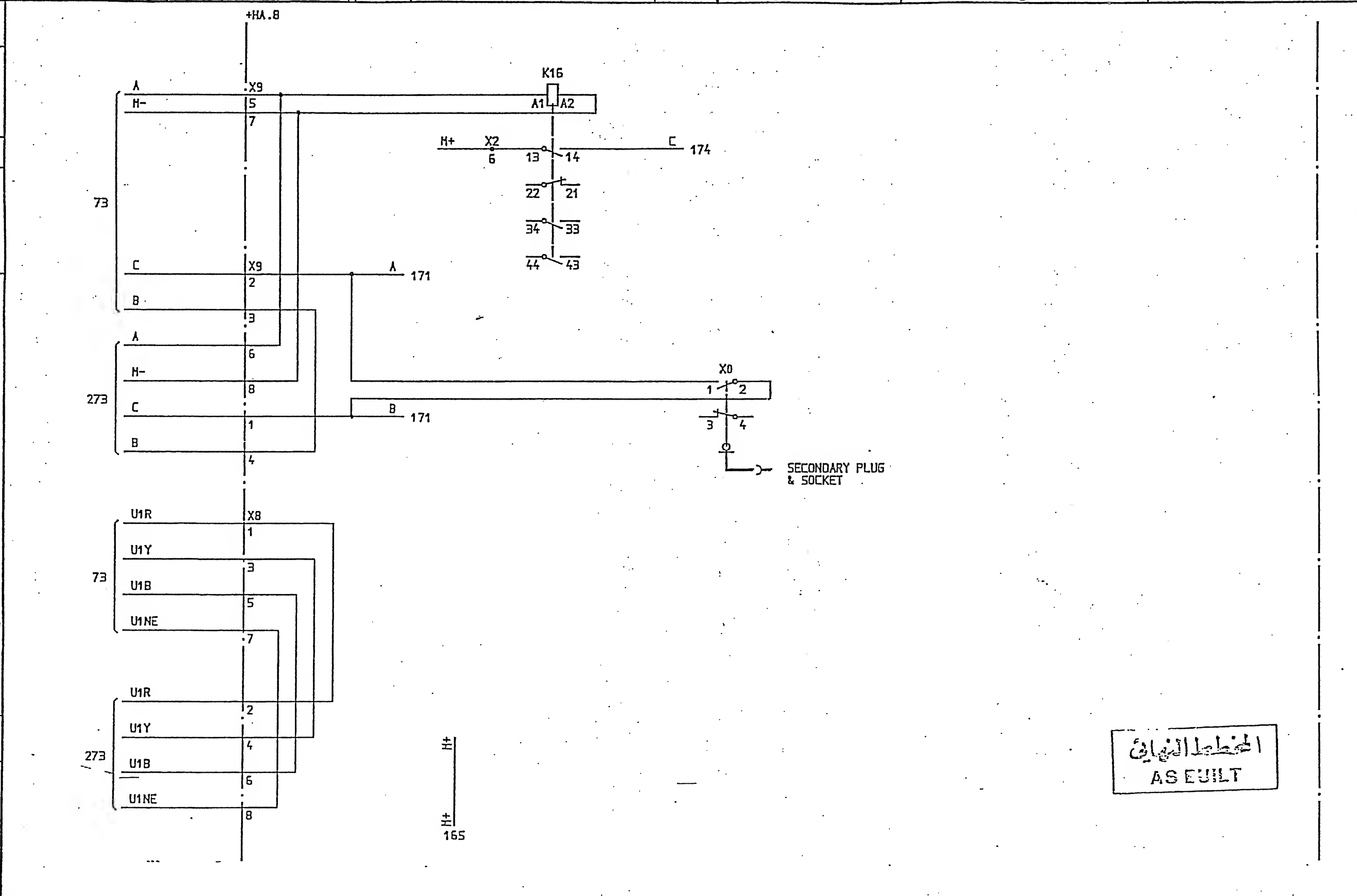
SYMBOL ID /D:XL82402B-FBR:172/0 92-07-02 18.53

Rev Ind	Revision	Appd	Year Week			
2	SCECO SNAG	LS	92 26	=4 33/13,8kV TRANSFORMER BAY T12	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by PN	CIRCUIT DIAGRAM S/S B501 132/33kV SCECO CENTRAL SAUDI ARABIA
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -475		ABB HV SWITCHGEAR; Iss by Dept TDCF; Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2 — Sheet 172 — Cont 173

SNG/TC



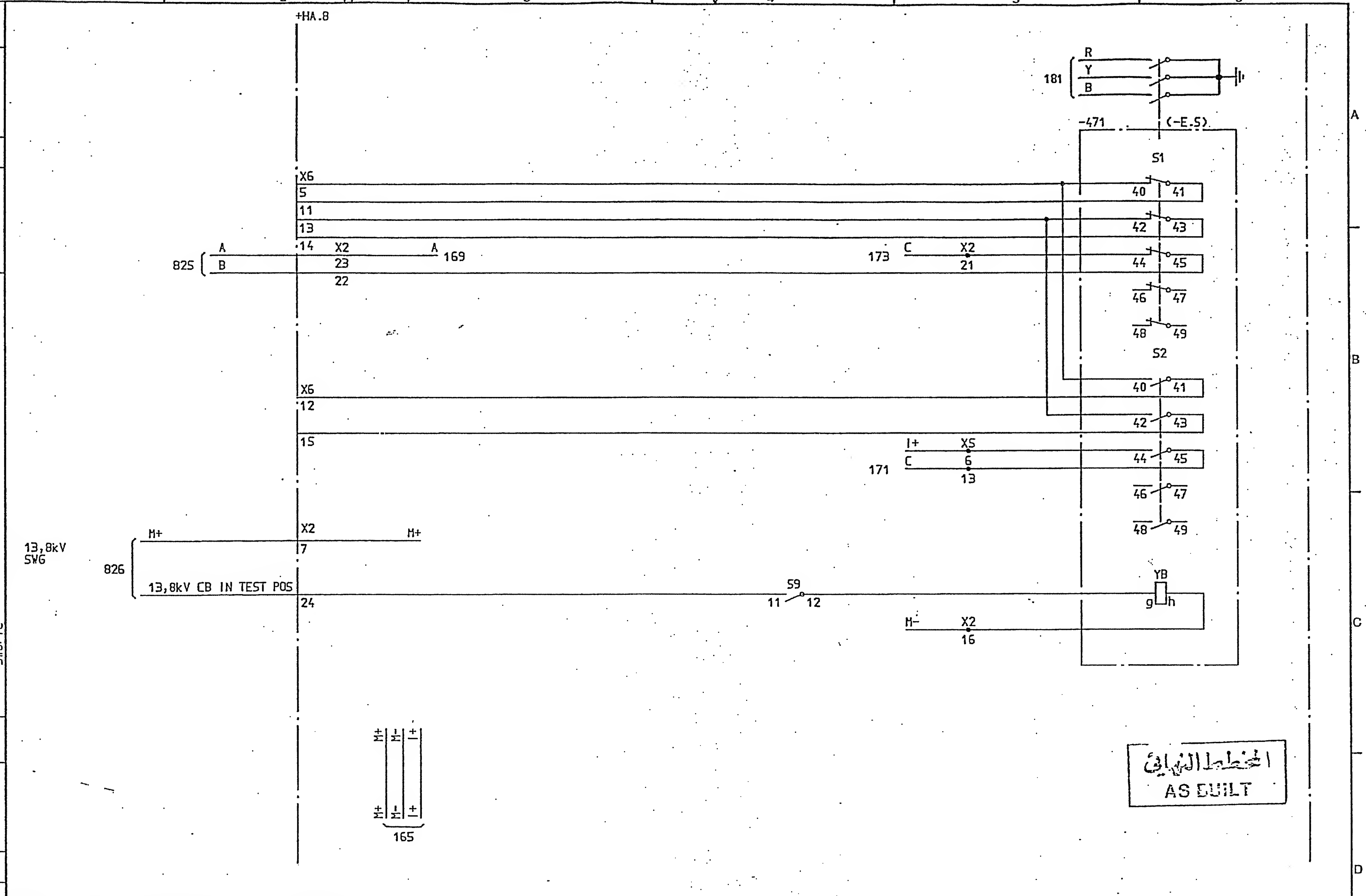
SYMBOL ID /0:XL824028-FBR:173/0 DATE 91-06-06 12.02

=4	Design checked by: B NILSSON	CIRCUIT DIAGRAM
33/13,8kV TRANSFORMER BAY T12	Drawing checked by: L SVENSSON	S/S 8501 132/33kV
		SCECO CENTRAL SAUDI ARABIA
INTERLOCKING RELAY FOR C.B. TRUCK	Drawn by: PN	ABB HV SWITCHGEAR

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

Iss by Dept	Year Week	Document	Rev Ind	Sheet	Cont
TDCF	90 36	L 9743.1017 XL 824 028-FBR	1	173	174

ABB



SYMBOL ID /D:XL824028-FBR:174/0 92-07-02 18.53

Rev Ind	Revision	Appd	Year Week			
2	SCECO SNAG	LS	92 26	=4	Design checked by B NILSSON	CIRCUIT DIAGRAM
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T12	Drawing checked by L SVENSSON	S/S 8501 132/33kV
				EARTH SWITCH EQUIPMENT -471	Drawn by PN	SCECO CENTRAL SAUDI ARABIA
						ABB HV SWITCHGEAR · Iss by Dept TDCF · Year Week 90 36

L 9743.1017
XL 824.028-FBR

Sheet 174 · Cont 176 · Rev Ind 2

ABB

+HA.8

K4 TRANSF DIFF PROT 87T-1
7454 344-CE
RADSB
≥1
3Id >>
3Id/I >

101 17A 16A 15A 131:25 131:15
178 C
178 F
107:316 107:318
R- K3 21 11
168 178 B D 12 13 A E 168 178
14 15
16 17
R+
22 23 24 25 26 27
K18
R- 22 21
23 24 25 26 27 28
TRIP INDIC. 94 - 1.

107:116 107:118 107:317 101 2A 131:24 131:16 101 1A 18A
S4+ R+ R-

101 3A 4A 5A 6A 7A 8A 9A 10A 11A 12A 13A 14A
X7 8 9 10 5 6 7

T1
X1 1 X1
7 S1 P1 1
8 S2 2 P2 2
9 S1 P1 3
10 S2 3 P2 4
11 S1 P1 5
12 S2 P2 6
I1R I1Y I1B I1NE
180
1/3.79
SINGLE PHASE RATIO

T2
X1 1 X1
7 S1 P1 1
8 S2 2 P2 2
9 S1 P1 3
10 S2 3 P2 4
11 S1 P1 5
12 S2 P2 6
1/6.04
SINGLE PHASE RATIO

=4
-T11

X7 1 I1R
2 I1Y
3 I1B
4 I1NE
CT 13,8kV SWG 825

X7 11 I1N
12 I1NE
846

I1N 13 I1NE 815
14

818 + X3 33kV PROT OPER 48 49
G 178 178 H

R+ R- S4+
R+ R- S4+
165

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824023-FBR:177/0 92-07-07 18.54

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=4
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T12
				TRANSFORMER DIFFERENTIAL PROT

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept TDCF Year Week 90 16

L 9743.1017
XL 824 028-FBR
Rev Ind 2 Sheet 177 Cont 178

+HA.8

SEE SHEET
-FBB:361

33kV
PROT OP
28

33kV
PROT OP
37B

168.10 =1 TRIP+

805 +

817 HV O/C TRIP

K18
R-
12 11
13 14
15 16
17 18
TRIP INDIC.
94 -2

K2
21 11
13 12
15 14
17 16
R+
23 22

177 C
177 D
177 E
177 G
177 H

X6 31
X3 31
32
51
X6 30
X3 52

K1
7431 154-A8

O/C&E/F PROT.
RACID
R S T
N
I >
I >>
I ⏚>
I ⏚>>

S1:
1 2 3 4 5 6 7 8

101
13A
107:126
107:323
101
17A
16A
S4+ 107:313
107:315

107:417
101
1A
18A
2A
107:127
107:124
107:314
107:316
107:318
107:328

101
3A 4A
5A 6A
7A 8A
9A 10A
12R
12Y
12B
12NE
180

S4+
R+
R-
PE

165.10 A
177 F

R+ R- S4+
R+ R- S4+
165

المخطط النهائي
AS BUILT

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ABB

SYMBOL ID /D:XL824028-FBR:178/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=4 33/13,8kV TRANSFORMER BAY T12
1	AS BUILT	LS	91 21	OVERCURRENT PROT 33kV

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR | Dept TDCF | Year Week 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind 2 | Sheet 178 | Lang | Cont 180

ABB

+HA.8

DIFF PROT

177

I1R
I1Y
I1B
I1NE

X11
10
11
12
13
14
15
16
17
18
19
1E

-T11.R
-T11.Y
-T11.B

169
R
Y
B

P1
P1
P1

1S1
1S2
1S1
1S2
1S1
1S2

800/5A

O/C & E/F PROT

178

I2R
I2Y
I2B
I2NE

X21
20
21
22
23
24
25
26
27
28
29
2E

2S1
2S2
2S1
2S2
2S1
2S2

800/5A

المخطط النهائي
AS BUILT

SWG/TC

SYMBOL ID /D:XL824028-FBR:180/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=4 33/13,8kV TRANSFORMER BAY T12	
Rev Ind	Revision	Aprvd	Year Week	CURRENT TRANSFORMER -T11	

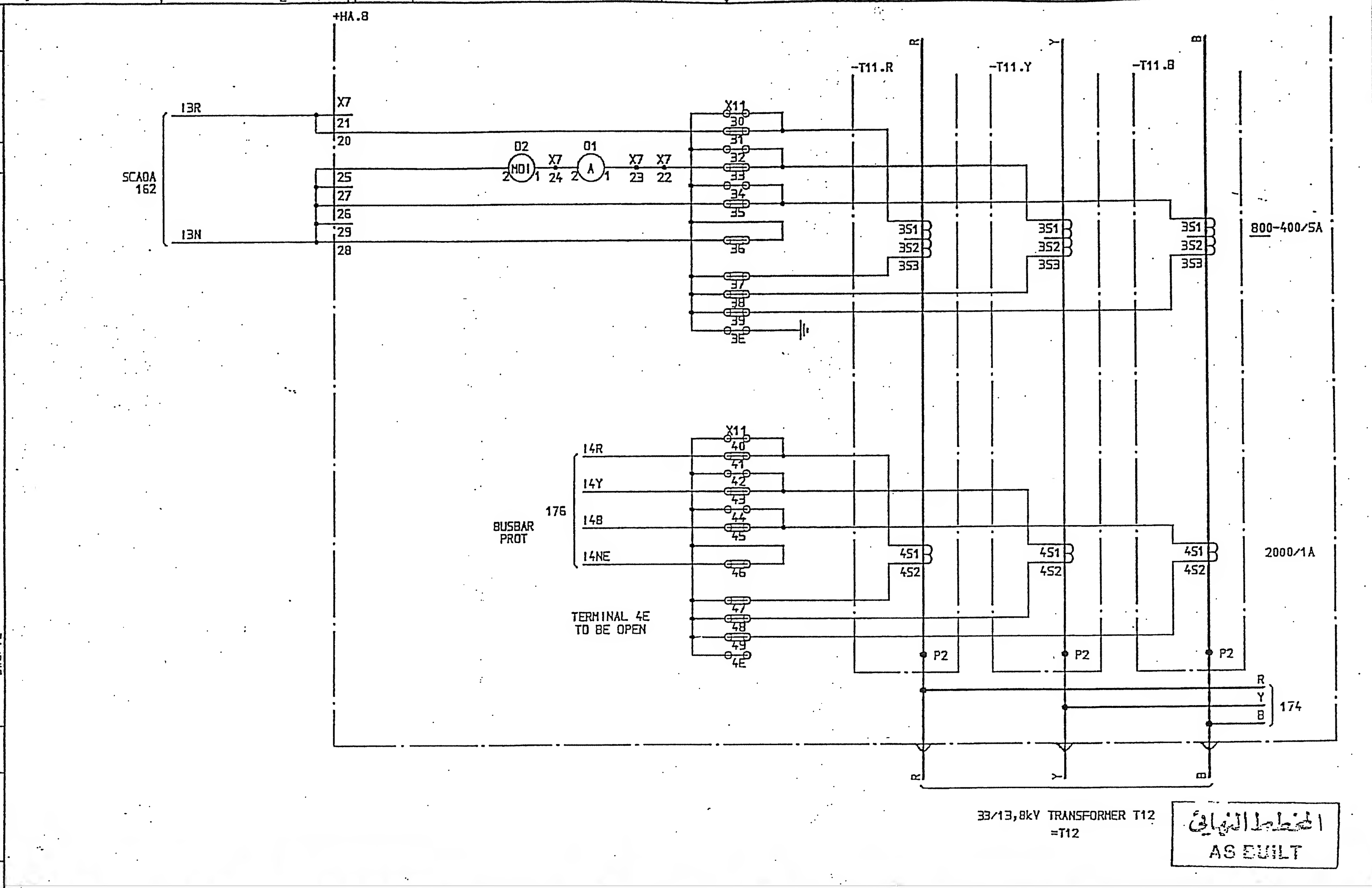
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 — Sheet: 180 — Cont: 181

ABB



SYMBOL ID /D:XL824028-FBR:181/0 DATE 91-06-06 12.03

Rev Ind	Revision	Appd	Year Week								
1	AS BUILT	LS	91 21	=4 33/13,8kV TRANSFORMER BAY T12 CURRENT TRANSFORMER -T11	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by PN	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	ABB HV SWITCHGEAR	Iss by Dept TDCF	Year Week 90 36	L 9743.1017 XL 824 028-FBR	Lang; Rev Ind 1; Sheet 181; Cont 212

ABB

SCADA EQUIPMENT

+XA.1

CIRCUIT BREAKER -575

ECC/LOC CONTROL SELECTION

5.X1
1 CLOSE
2 REM R+
3 R1-
4
5 OPEN
6 OP/CL
7 R1-
8

5.X2
1 OPEN
2 CLOSED
3 COMM

5.X2
4 =S LOC
5 =S ECC
6 COMM

FUTURE

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:212/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=5 33kV FUTURE LINE	SCADA INTERFACE EQUIPMENT
Rev Ind	Revision	Appd	Year Week		

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Ins by Dept: TCF — Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 — Sheet: 212 — Cont: 251

ABB

ITEM	DESIGNATION	SHEET
+R8.4	HEATING AND LIHTING RELAY CUBICLE	254
	VOLTAGE DISTRIBUTION RELAY CUBICLE	255
+XA.1	SCADA INTERFACE EQUIPMENT	262
+HA.9	AUX. VOLTAGE SUPPLY	265
	HEATING AND LIGHTING	266
	C.B. OPERATION CIRCUITS	268
-575	CIRCUIT BREAKER EQUIPMENT	269
	INTERLOCKING	273
-571	EARTH SWITCH EQUIPMENT	274
	TRIP RELAYS	278
-T11	CURRENT TRANSFORMER	280
+R8.4	DISTANCE PROTECTION	282
	AUTO RECLOSE RELAY	285
	OVERCURRENT AND EARTH FAULT PROT	287

المخطط النهائي
AS BUILT

PKL SRG/TC

SYMBOL ID /0:XL824028-FBR:251/0 DATE 91-06-04 09.07

Rev Ind	Revision	Appd	Year Week		Design checked by			Rev Ind	Sheet
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE LIST OF CONTENTS	Design checked by B NILSSON; Drawing checked by S STRIDSMAN; Drawn by IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR; Iss by Dept TCF; Year Week 90 10	L 9743.1017 XL 824 028-FBR	Lang; Rev Ind 1	Sheet 251; Cont 254

ITEM	DESIGNATION	SHEET
+XA.1	SCADA INTERFACE EQUIPMENT	362
+HA.12	AUX. VOLTAGE SUPPLY	365
	HEATING AND LIGHTING	366
	C.B. OPERATION CIRCUITS	368
-B75	CIRCUIT BREAKER EQUIPMENT	369
	INTERLOCKING	373
-B71	EARTH SWITCH EQUIPMENT	374
	TRANSFORMER DIFFERENTIAL PROT	377
	OVERCURRENT PROT	378
-T11	CURRENT TRANSFORMER	380

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:351/0 DATE 91-06-04 09.09

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=8
33/13,8kV TRANSFORMER BAY T13
LIST OF CONTENTS

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Use by Dept: TCF
Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Rev Ind: 1
Sheet: 362
Lang:
Sheet: 351

ITEM	DESIGNATION	SHEET
+XA.1	SCADA INTERFACE EQUIPMENT	362
+HA.12	AUX. VOLTAGE SUPPLY	365
	HEATING AND LIGHTING	366
	C.B. OPERATION CIRCUITS	368
-B75	CIRCUIT BREAKER EQUIPMENT	369
	INTERLOCKING	373
-B71	EARTH SWITCH EQUIPMENT	374
	TRANSFORMER DIFFERENTIAL PROT	377
	OVERCURRENT PROT	378
-T11	CURRENT TRANSFORMER	380

المخطط انتهائي
AS BUILT

SYMBOL ID /D:XLB24028-FBR:361/0 DATE 91-06-04 09.09

1	AS BUILT	LS	91 21	=8	33/13,8kV TRANSFORMER BAY T13
				LIST OF CONTENTS	

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Issue by Dept: TCF Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Flow Ind: 1 Sheet: 361 Cont: 362

SCADA EQUIPMENT

+XA.1

CIRCUIT BREAKER -875

8.X1

1 — CLOSE
2 — REM R+ — 368
3 — =8_R- — 365
4
5 — OPEN
6 — OP/CL — 368
7 — =8R- — 365
8

8.X2

1 — OPEN
2 — CLOSED
3 — COMM — 372

ECC/LOC CONTROL SELECTION

8.X2

4 — =8 LOC
5 — =8 ECC
6 — COMM — 368

47 — 13R
48 — 13NE — 381

المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:362/0 DATE 91-06-04 09.09

Row Ind	Revision	Appd	Year Week	
1	AS BUILT	LS	91 21	=9 33/13,8kV TRANSFORMER BAY T13 SCADA INTERFACE EQUIPMENT

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: IA

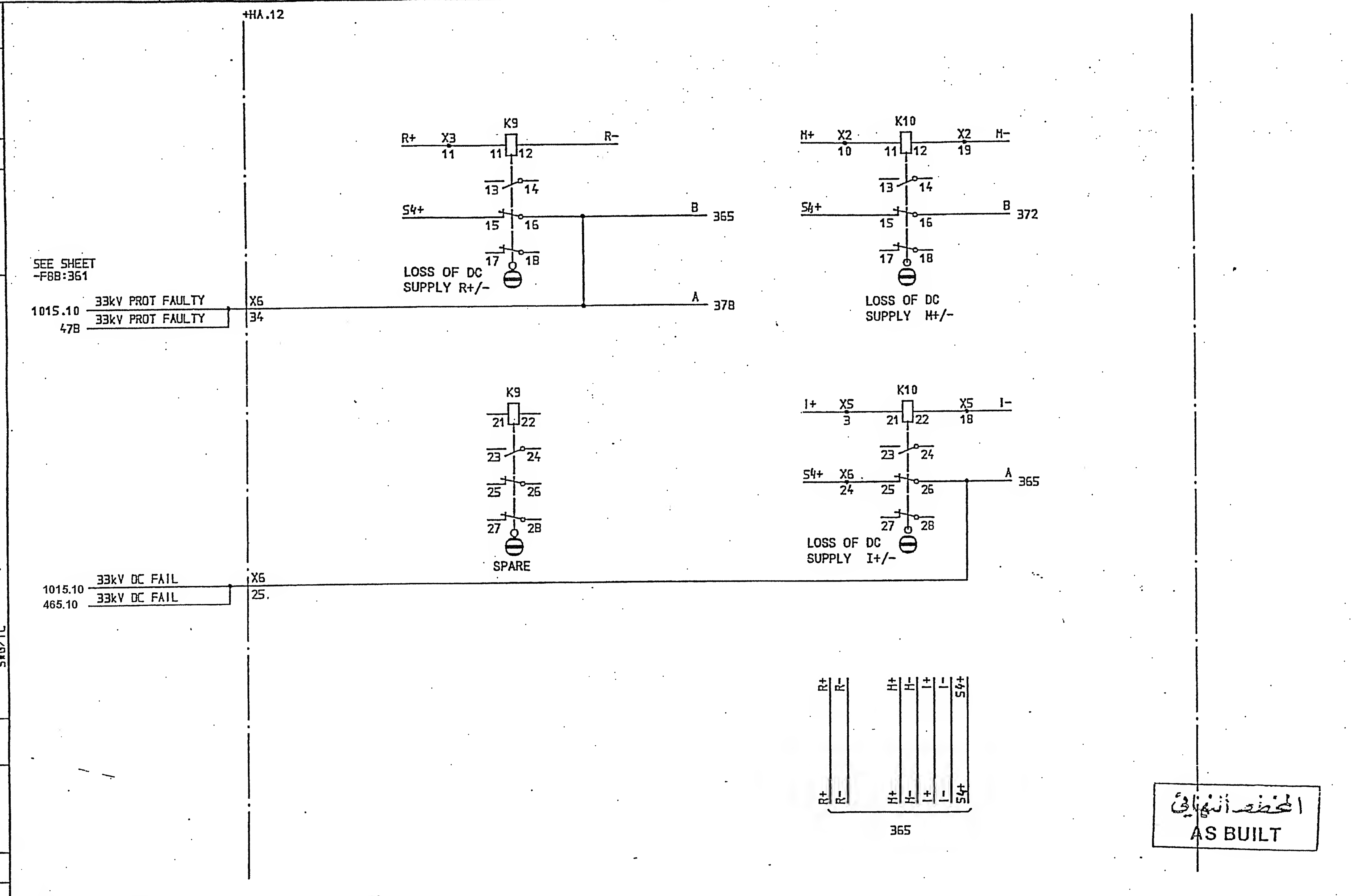
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Ins by Dept: TCF — Year Week: 90 10

L:9743.1017
XL 824 028-FBR

Row Ind: 1 — Sheet: 362 — Cont: 365

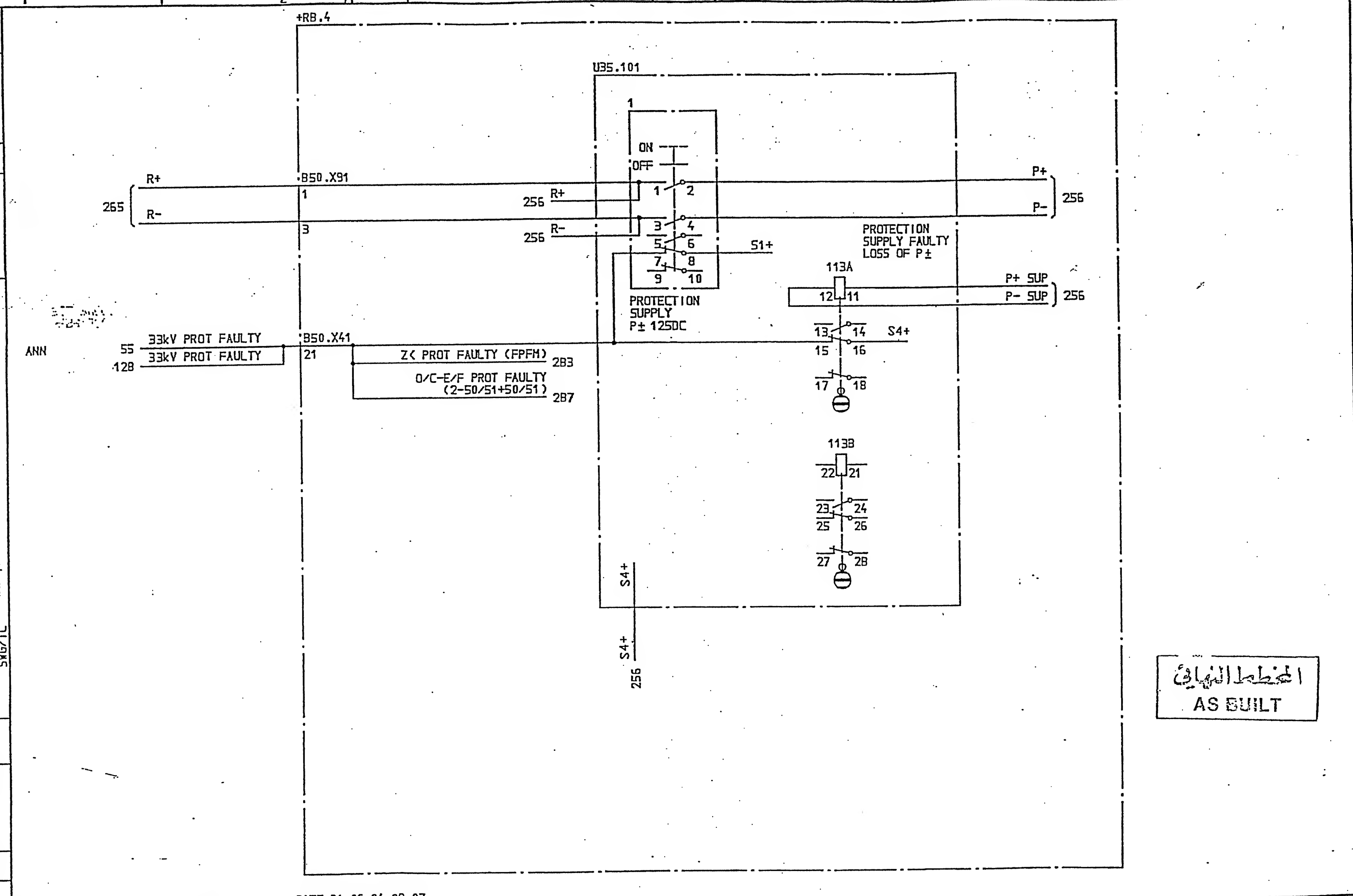
ABB



SYMBOL ID /0:XL824028-FBR:365.10/0 DATE 91-06-04 09.09

Rev Ind	Revision	Appd	Year Week				
1	AS BUILT	LS	91 21	=8 33/13,8kV TRANSFORMER BAY T13 DC AUX. VOLTAGE SUPPLY	Design checked by: B NILSSON Drawing checked by: L SVENSSON Drawn by: SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR Iss by Dept: TDCF Year Week: 90 36	L 9743.1017 XL 824 028-FBR Rev Ind: 1 Sheet: 365.10 Cont: 366

SKG/TC

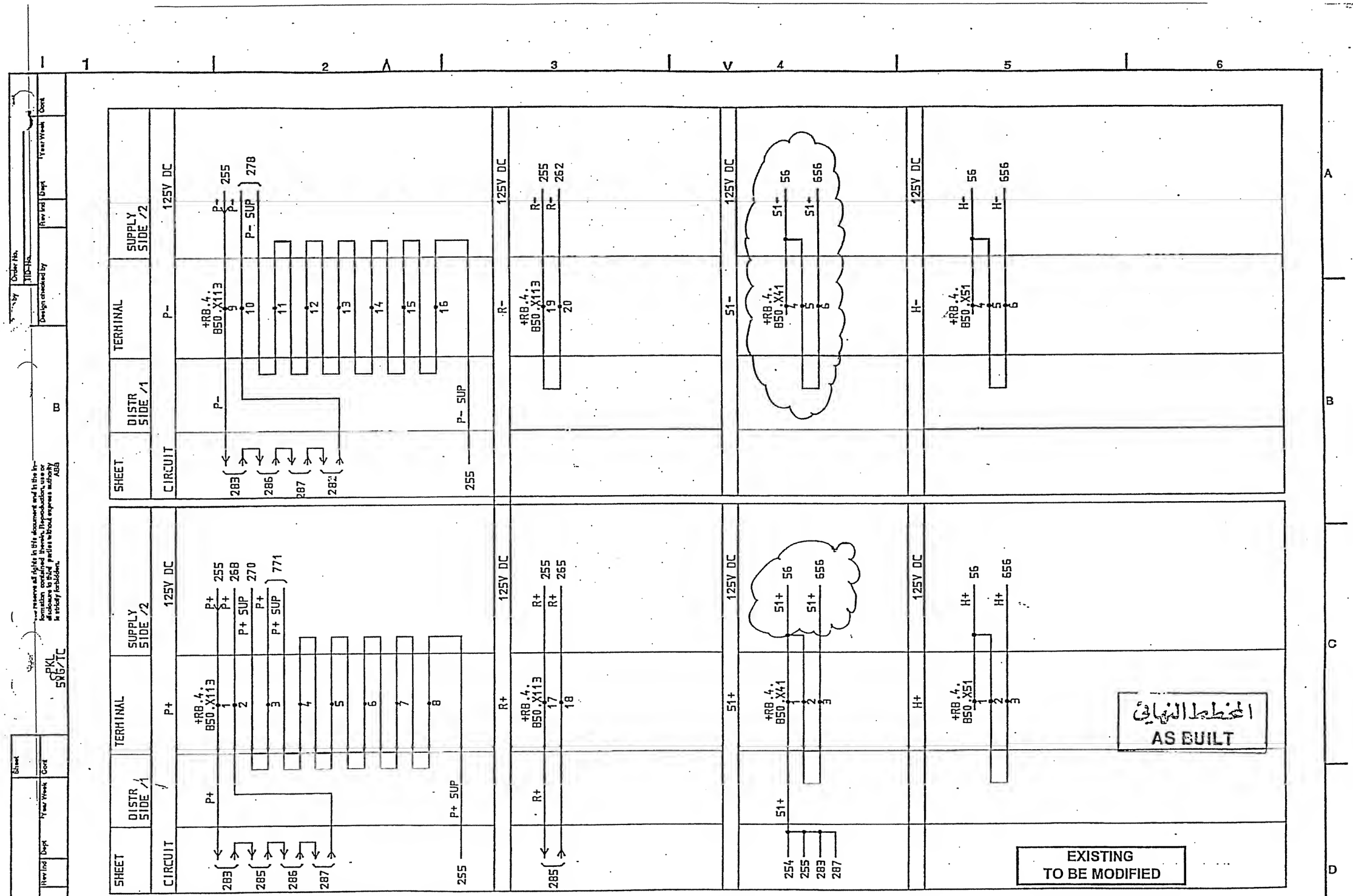


الخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:255/0 DATE 91-06-04 09.07

Rev Ind	Revision	Appd	Year Week		Design checked by			
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE PROTECTION SUPPLY VOLTAGE DISTRIBUTION	B NILSSON Drawing checked by: J SKOVGAARD Drawn by: IA	CIRCUIT DIAGRAM S/S B501 132/33kV SCECO CENTRAL SAUDI ARABIA Iss by Dept: TDCF Year Week: 90 16	L 9743.1017 XL 824 028-FBR	Rev Ind: 1 Sheet: 255 Cont: 256

ABB



SYMBOL ID /D:XL82402B-FBR:256/0 DATE 91-06-04 09.07

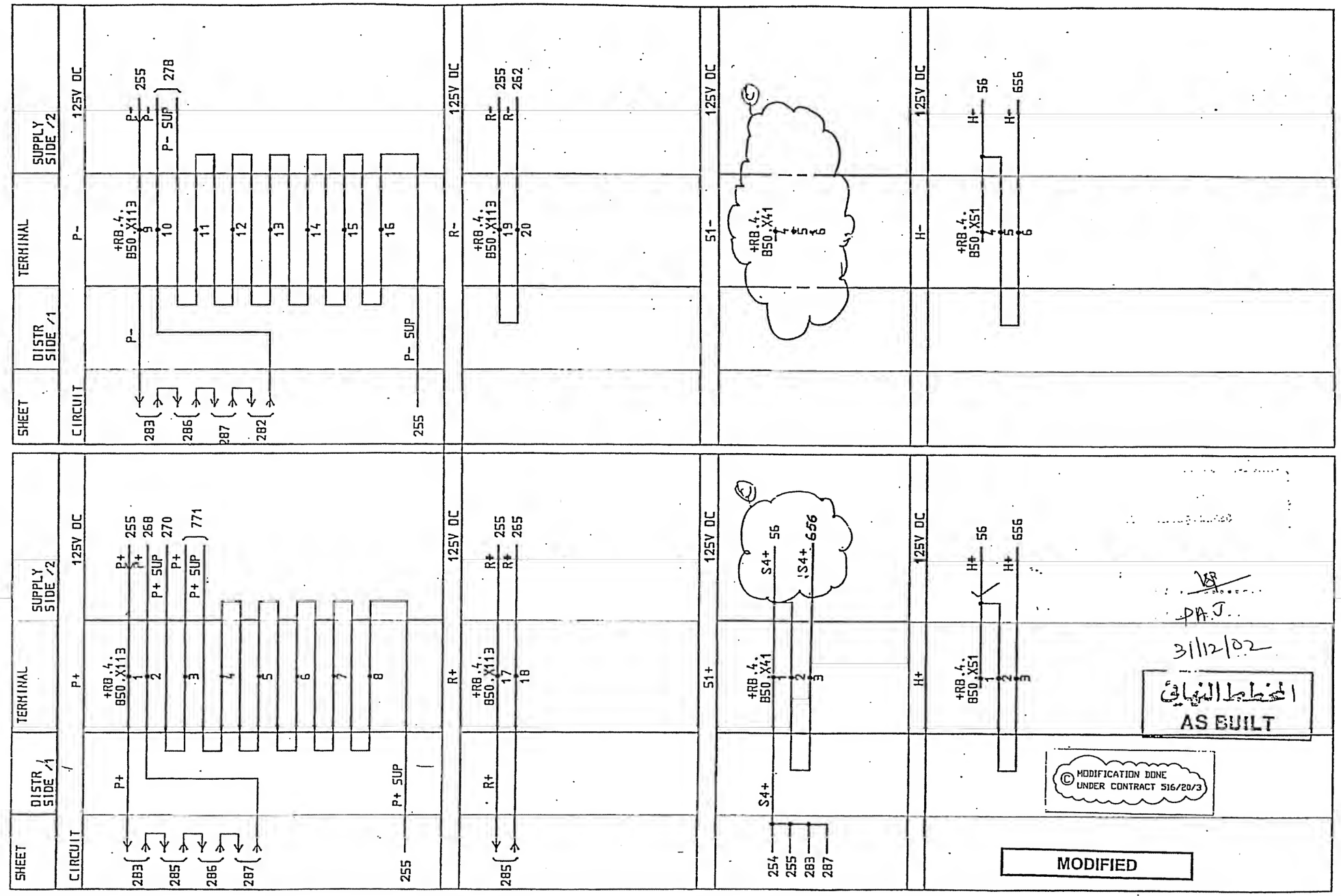
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE PROTECTION AND ALARM SUPPLY VOLTAGE DISTRIBUTION	Design checked by: B NILSSON; Drawing checked by: J SKOVGAARD; Drawn by: IA
Rev Ind	Revision	Appd	Year Week		

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Dep by Dept: TDCF; Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind: 1; Sheet: 256; Cont: 262

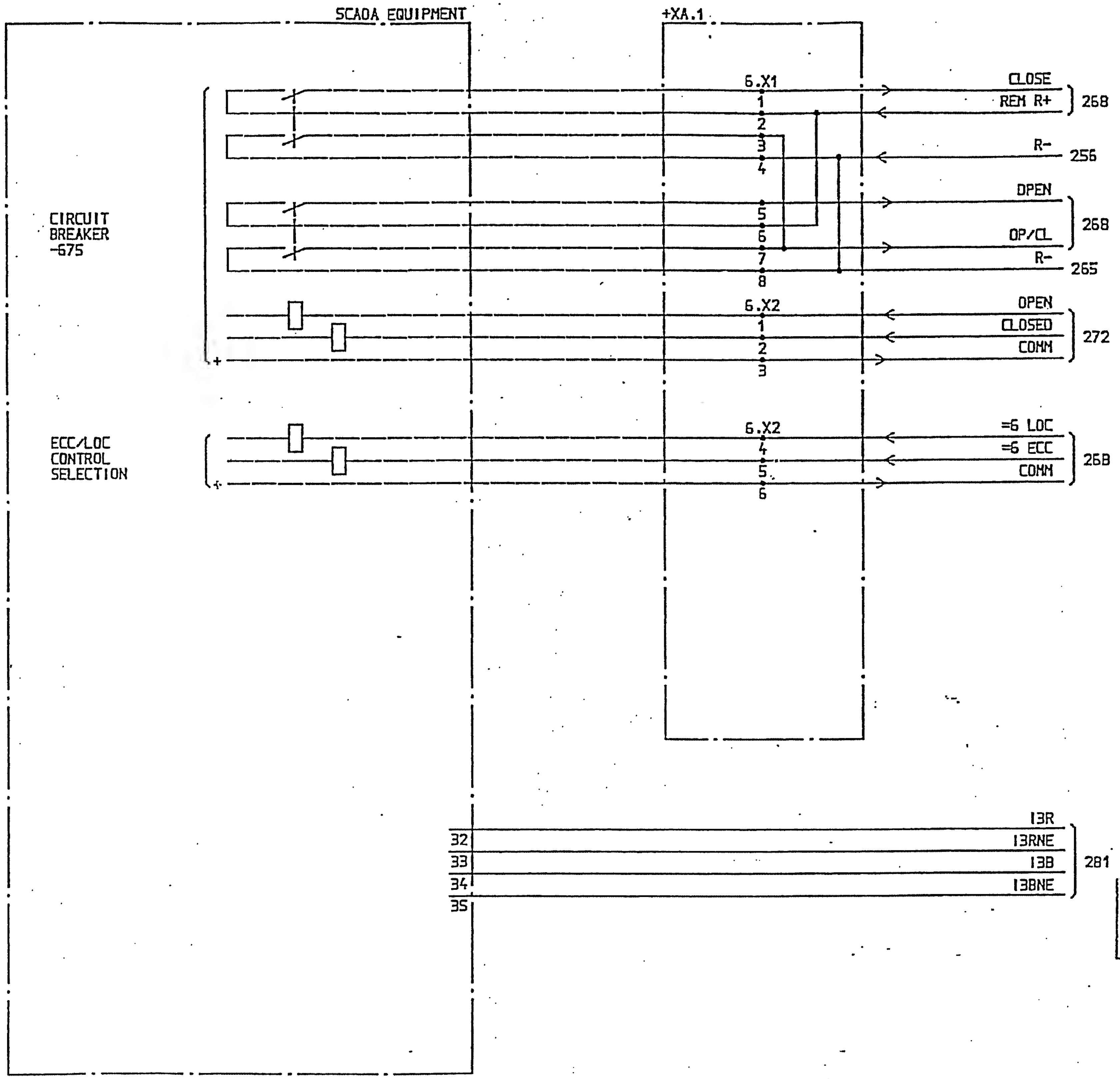
ABB



SYMBOL ID /D:XL82402B-FBR:256/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE PROTECTION AND ALARM SUPPLY VOLTAGE DISTRIBUTION	Design checked by B NILSSON; Drawing checked by J SKOVGAARD; Drawn by IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA; ABB HV SWITCHGEAR TDCF 90 16	L 9743.1017 XL 824 028-FBR; Lang; Sheet 256; Rev Ind 1; Cont 262
Rev Ind	Revision	Appd	Year Week				

ABB ASEA



المخطط النهائي
AS BUILT

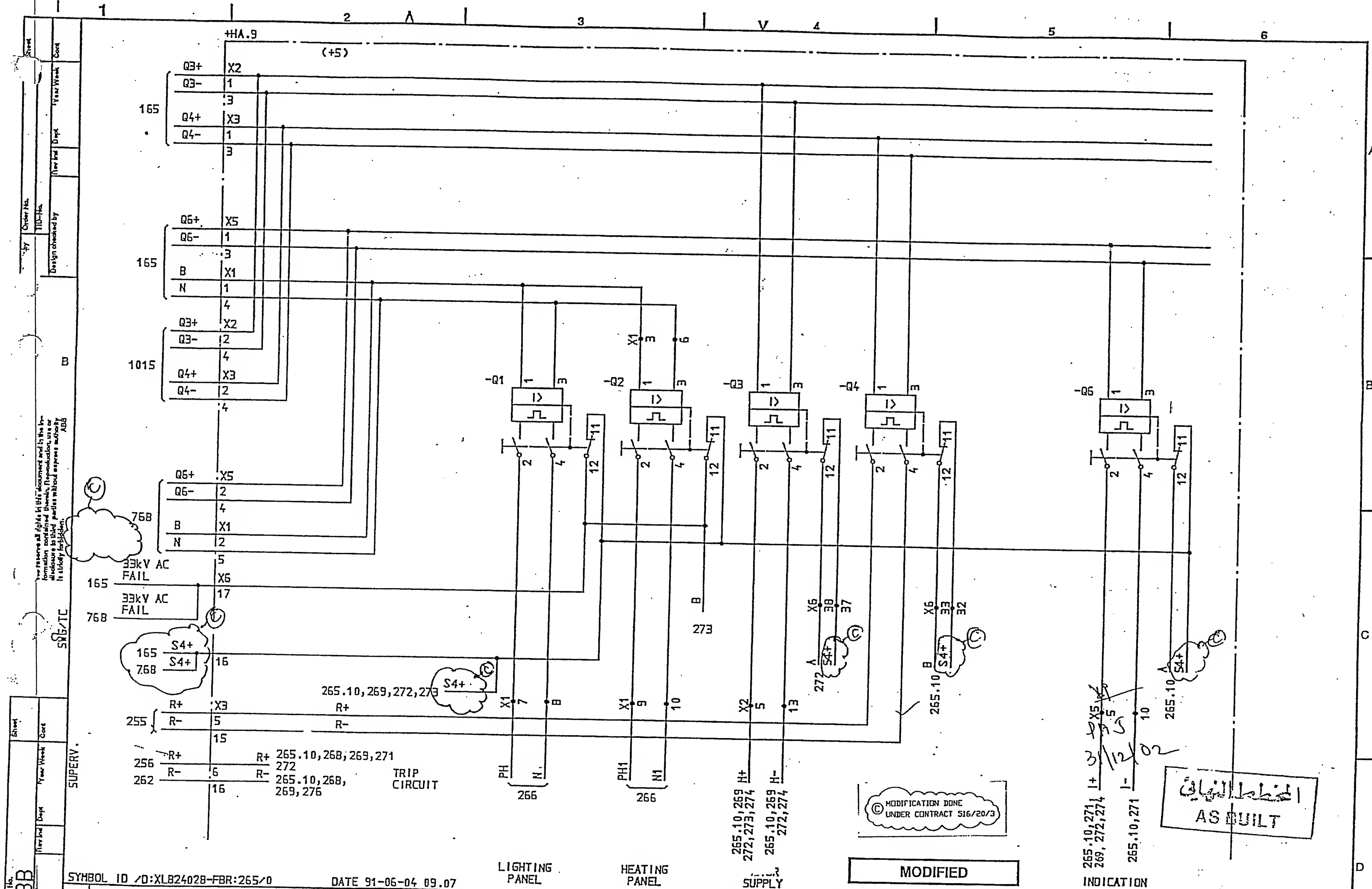
SYMBOL ID /D:XL824028-FBR:262/0 DATE 91-05-04 09.07

1 AS BUILT	LS 91 21	=6 33kV INTERCONNECTOR LINE SCADA INTERFACE EQUIPMENT	Design checked by B NILSSON; Drawing checked by S STRIDSMAN; Drawn by IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA
			ABB HV SWITCHGEAR	TCF 90 10

L 9743.1017
XL 824 028-FBR

Sheet 262 Cont 265 Rev Ind 1

ABB



SYMBOL ID /D:XL824028-FBR:265/0 DATE 91-06-04 09.07

Rev ind	Revision	Appd	Year Week
2	AS BUILT	LS	91 21

=6

33kV INTERCONNECTOR LINE

DC AUX. VOLTAGE SUPPLY

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

TDCF 90 36

L 9743.1017

XL 824 028-FBR

Sheet 265 — Cont 265.10 — Rev ind -2

ABB

+HA.9

K9

R+ X3 11 — 11 12 — R-

13 14

54+ — 15 16 — B 265

17 18

LOSS OF DC SUPPLY R+/-

K10

M+ X2 10 — 11 12 — X2 19 M-

13 14

54+ — 15 16 — 8 272

17 18

LOSS OF DC SUPPLY M+/-

165.10 33kV PROT FAULTY
1015.10 33kV PROT FAULTY
X6 34

K9

21 22

23 24

25 26

27 28

K10

I+ X5 8 — 21 22 — X5 18 I-

23 24

54+ X6 24 — 25 26 — A 265

27 28

LOSS OF DC SUPPLY I+/-

1015.10 33kV OC FAIL
165.10 33kV OC FAIL
X6 25

R+ R- H+ H- I+ I- 54+

265

الخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:265.10/0 DATE 91-06-04 09.07

1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE OC AUX. VOLTAGE SUPPLY	Design checked by: B NILSSON; Drawing checked by: L SVENSSON; Drawn by: SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR; Sheet 265.10; Cont 266
Rev Ind	Revision	Appd	Year Week			Ins by Dept TDCF Year Week 90 36	Rev Ind 1

ABB

+HA.9

OPEN — X3 28

262

OP/CL — 25

-S1 TRIP / N / CLOSE

-S2 REMOTE / LOCAL

1 — 2 — X3 18 R-

K8: X3 26 — 21 — 11 — X3 27

5 — 6 — 8 — 7 — X3 -8 R+

15 — 14

17 — 16 — B 278

278 A — 13 — 12 — X3 9 — 8 269

23 — 22

25 — 24

27 — 26

X3 17 R-

7

41 — 8

262 REM R+ — 48

4 — 3 — R+

3 — 2 — 1

K7: X3 40 — 21 — 11 — X3 39 — E 269

282 LINE CHECK — X3 — 15 — 14 — P+ 278

256 P+ — 50

49 — R+ X3 7 — 13 — 12 — A 271

262 CLOSE — X3

285 BLOCK A-R — 42

51 — 17 — 16

23 — 22

X6

20

25 — 24 — 11 — 12

18 — 9 — 10

27 — 26

19

COMM

262 =6 LOC — 21 — 15 — 16

=6 ECC — 22 — 13 — 14

23

R+ R- — R+ R- — 26S

الخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-F8R:268/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO-SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6 33kV INTERCONNECTOR LINE

C.8 SELECTOR SWITCHES

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR.

Issued by Dept: TDCF Year Week: 90 36

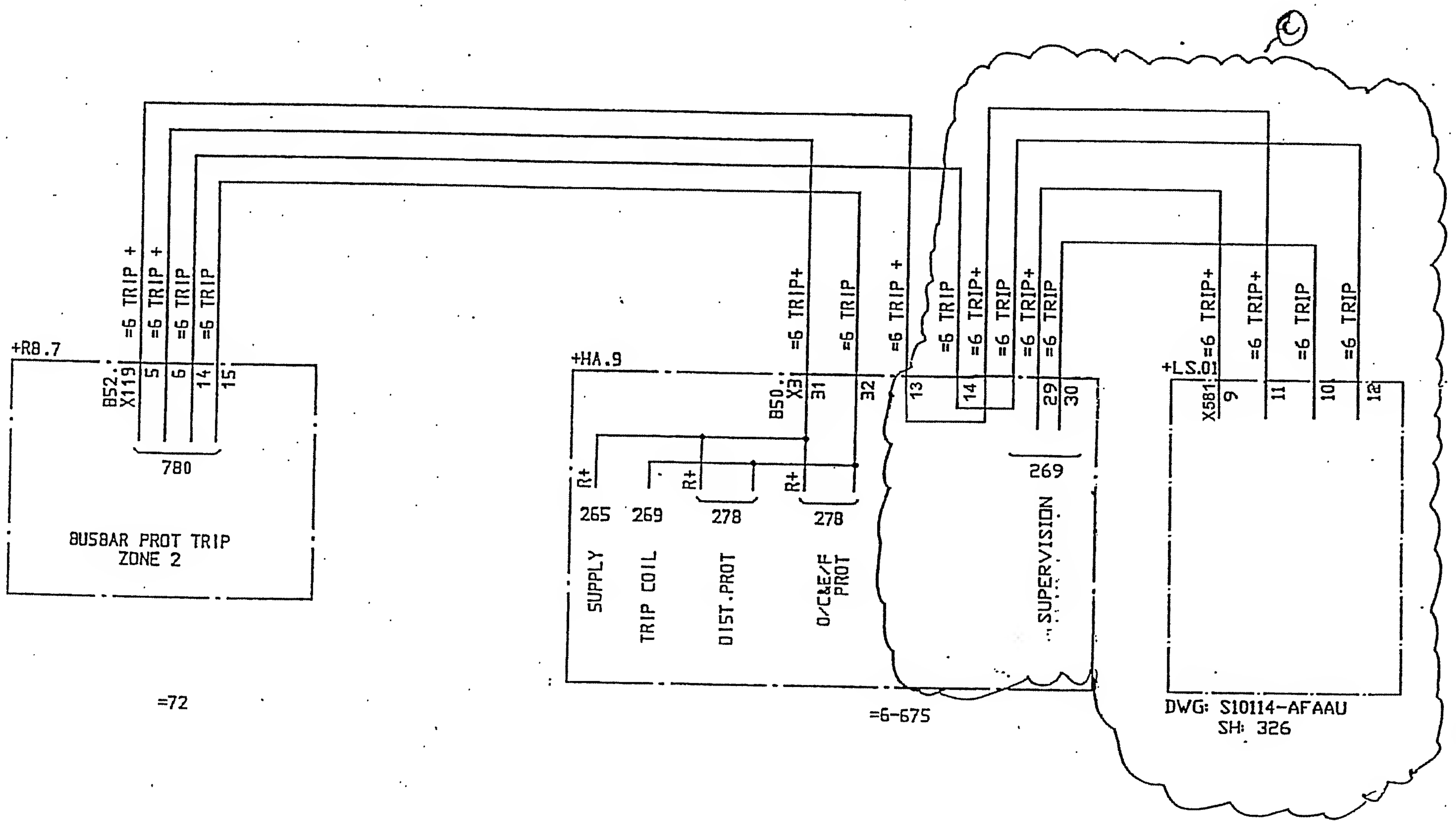
L 9743.1017
XL 824 028-FBR

Rev Ind: 2 Sheet: 268.10

Lang Sheet: 268

Form No. A BB

SWG/TC



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المخطط النهائي
AS BUILT

PAJ 31/12/02

MODIFIED

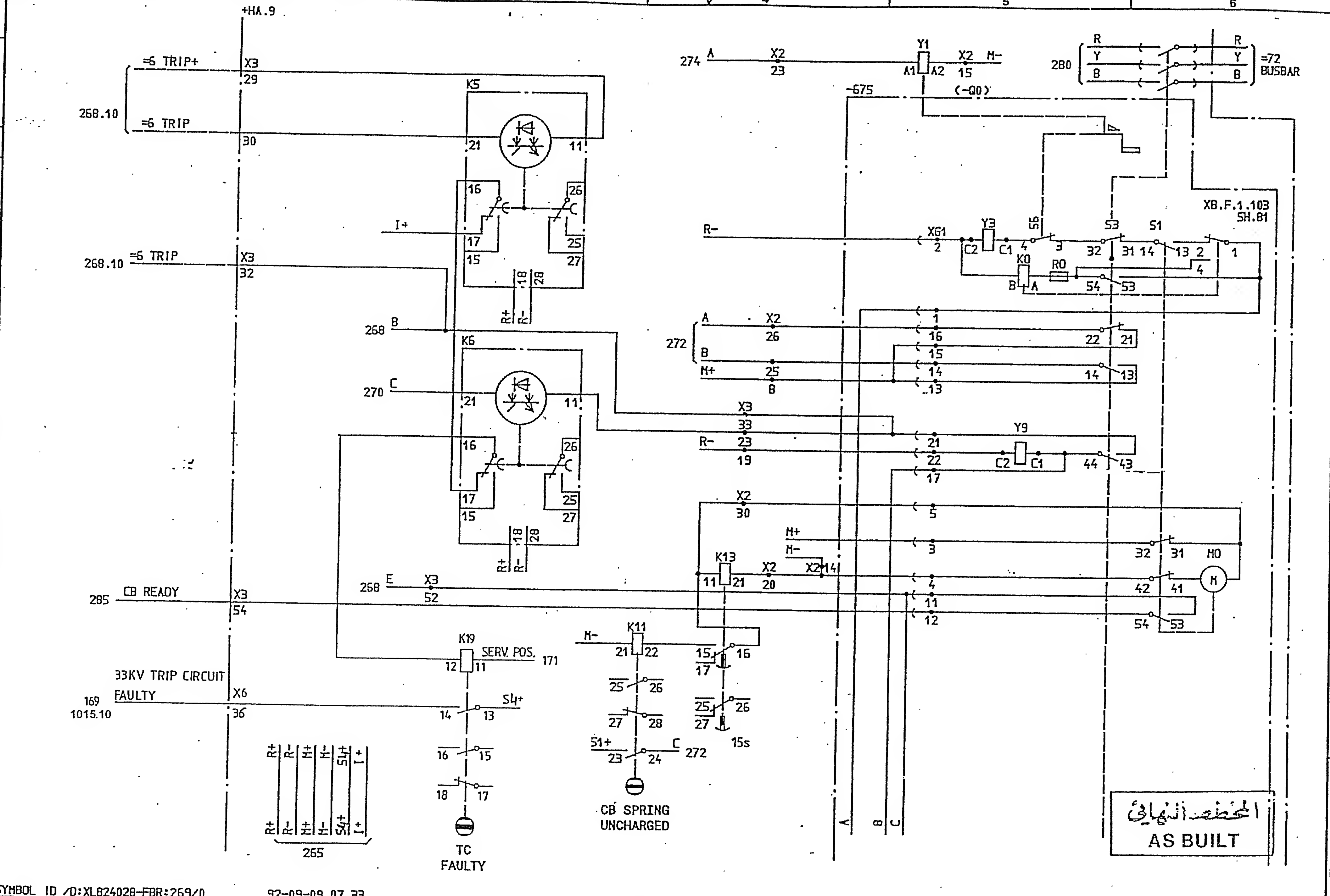
SYMBOL ID /D:XL824028-FBR:268.10/0 DATE 91-06-04 09.07

Rev Ind	Revision	Appd	Year Week		Design checked by / Drawn by		
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE PROTECTION TRIP CIRCUIT	B NILSSON / L SVENSSON / SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017 XL 824 028-FBR

ABB HV SWITCHGEAR TDCF 90 36

Sheet 268.10 Cont 269 Rev Ind 1

SNG/TC



SYMBOL ID /D:XL824028-FBR:269/0 92-09-09 07.33

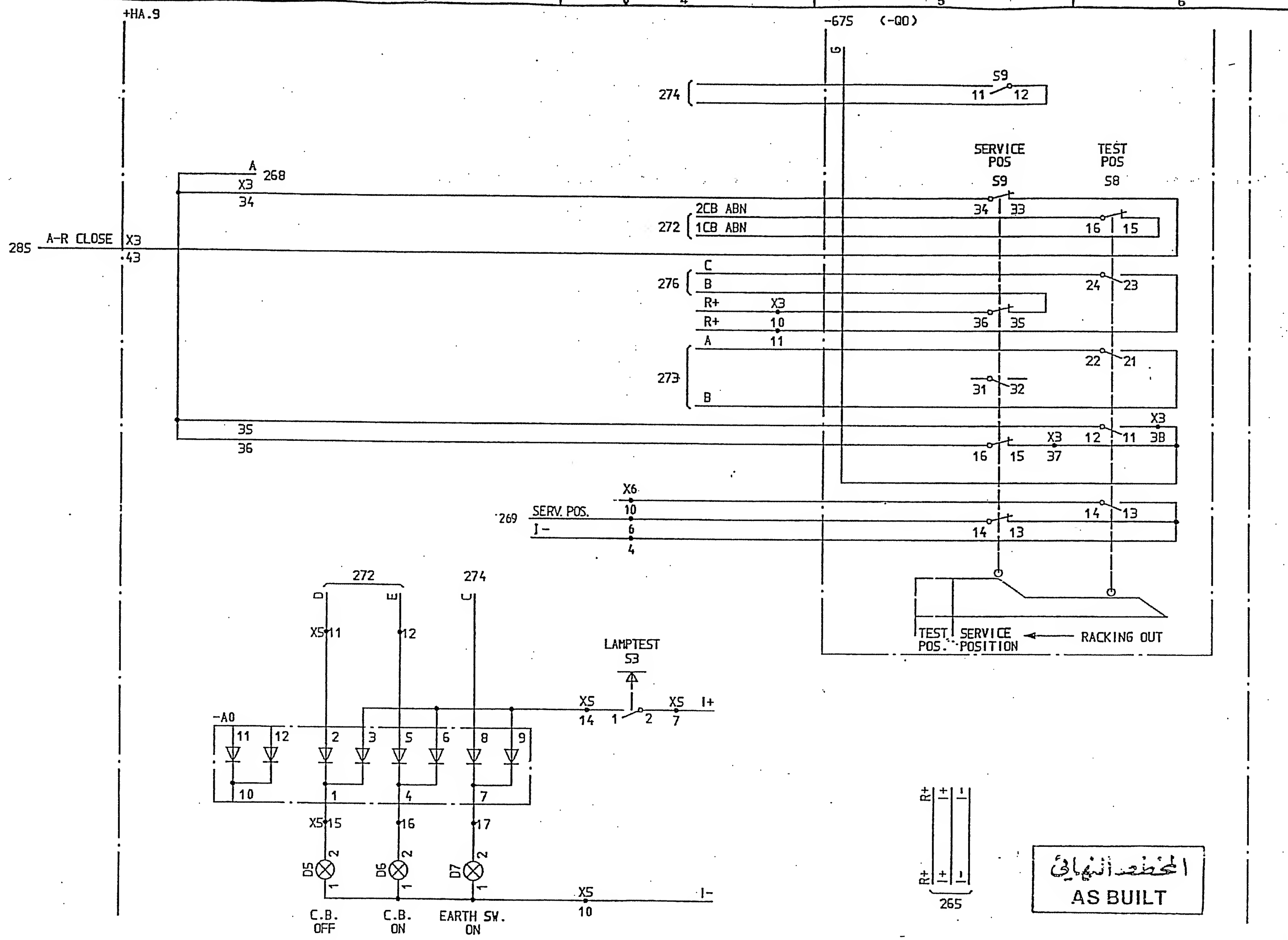
Rev Ind	Revision	Appd	Year Week		
2.1	SCECO SNAG	LS	92 26	=6	
1	AS BUILT	LS	91 21	33kV INTERCONNECTOR LINE	CIRCUIT BREAKER EQUIPMENT -675

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — TDCF — 90 36

L 9743.1017
XL 824 028-FBR

Sheet 269 — Cont 270 — Rev Ind 2.1



SYMBOL ID /D:XL824028-FBR:271/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
CIRCUIT BREAKER EQUIPMENT -675

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
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Lang
Sheet: 271
Rev Ind: 2.1
Cont: 272

+HA.9

K15
M- X2 17 A2 A1 ON B
32 31
269
K14
M- A2 A1 OFF A

K11
M- X2 18 12 11
54+ 13 14 B 265.10
17 18
15 16

X2 27 14 13 22 21
X2 14 13 22 21
X2 M+ 9
44 43
44 43

172 33kV CB ABNORMAL
1015.10 33kV CB ABNORMAL
X6 39
2CB ABN
1CB ABN
271
A 265
C 269
CB AUX.
I.R. FAULTY

D
271
E
54 53
X5 I+ 5
54 53

X6
2 64 63
3 64 63
OPEN 1
8 74 73
262 CLOSED
COMM 9 74 73
7
32 31
84 83
84 83

M+ M- R+ I+ 54+
M+ M- R+ I+ 54+
265

المخطط النهائي
AS BUILT

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Drawn by | Order No. | Rev Ind | Dept | Year Week | Sheet
Design checked by | TID-No. | | | | Cont
SR6/TC

SYMBOL ID /D:XL824028-FBR:272/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=6 33kV INTERCONNECTOR LINE
1	AS BUILT	LS	91 21	CIRCUIT BREAKER EQUIPMENT -675

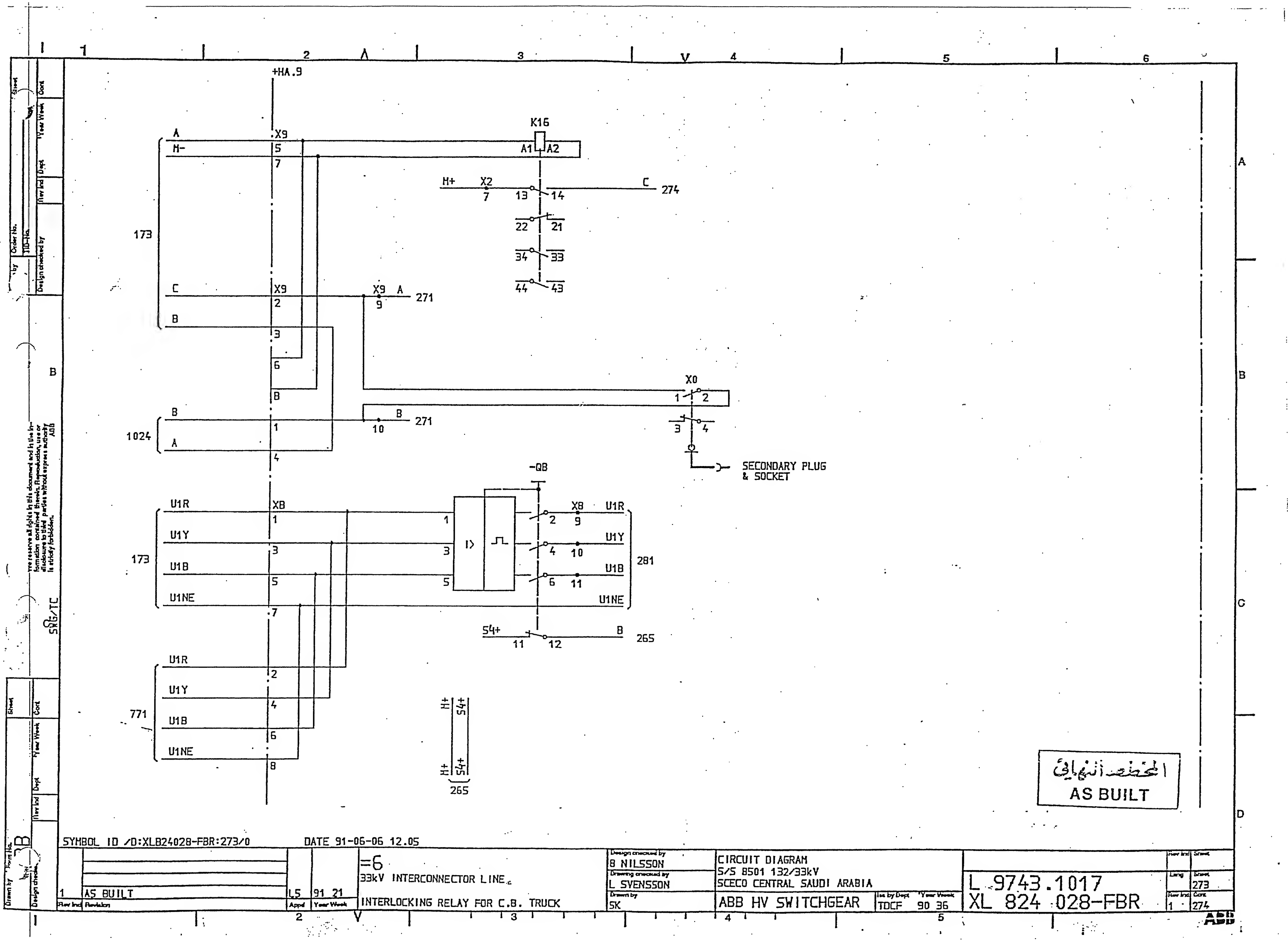
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 Sheet: 272 Cont: 273

ABB



+HA.9
K16
A
X9
M-
5
7
A1
A2
M+
X2
13
14
C
274
22
21
34
33
44
43
173
C
X9
2
X9
A
9
271
B
3
6
8
X0
1
2
B
B
271
1024
1
10
3
4
A
4
SECONDARY PLUG
& SOCKET
-QB
U1R
XB
1
X8
U1R
2
9
U1Y
3
I>
4
10
U1Y
281
173
U1B
5
6
11
U1B
U1NE
U1NE
7
S4+
11
12
B
265
U1R
2
U1Y
4
771
U1B
6
U1NE
8
M+
S4+
265
AS BUILT
SYMBOL ID /D:XLB24028-FBR:273/0
DATE 91-06-06 12.05
=6
33kV INTERCONNECTOR LINE
INTERLOCKING RELAY FOR C.B. TRUCK
1 AS BUILT
LS 91 21
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
273
274
ABB

+HA.9

281 R Y B

-671 (-E.S)

S1

X6 5 11 13 14 X2 22 X6 26 27

A 269

273 C X2 21

40 41 42 43 44 45 46 47 48 49

S2

X6 12 15 28 29 X2 7 24

1+ X5 C 6 13

271

M+

S9 11 12

Y8 1 2

M- X2 16

M+ M- I+ M+ M- I+

265

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:274/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6 33kV INTERCONNECTOR LINE

EARTH SWITCH EQUIPMENT -671

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Iss by Dept TDCF Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2 Lang Sheet 274 Cont 276

Drawn by BB Form No. Design ck'd SAG/TC Rev Ind Dept Year Week Sheet Cont

Order No. TID-No. Design checked by Drawn by Rev Ind Dept Sheet Cont

+HA.9

BUS DIFF

X3 C 271 TEST POS
22
K12
R- B SERVICE POS
211 212 20
121 122

782
14R X7 16 113 114 14R
14Y 17 115 116 14Y
14B 18 117 118 14B
14NE 19 123 124 14NE
281

213 214
227 228
225 226
223 224

R-
R-
265

المخطط النهائي
AS-BUILT

SYMBOL ID /D:XL824028-FBR:276/0 DATE 91-06-04 09.08

					=6	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S BS01 132/33kV SCECO CENTRAL SAUDI ARABIA		Rev Ind 1
					33kV INTERCONNECTOR LINE	Drawing checked by L SVENSSON		L 9743.1017	Sheet 276
1	AS BUILT	LS	91 21		C.T. SHORTING RELAY	Drawn by SK	ABB HV SWITCHGEAR Ins by Dept TDCF Year Week 90 36	XL 824 028-FBR	Rev Ind 1 Cont 278
Rev Ind	Revision	Appd	Year Week						

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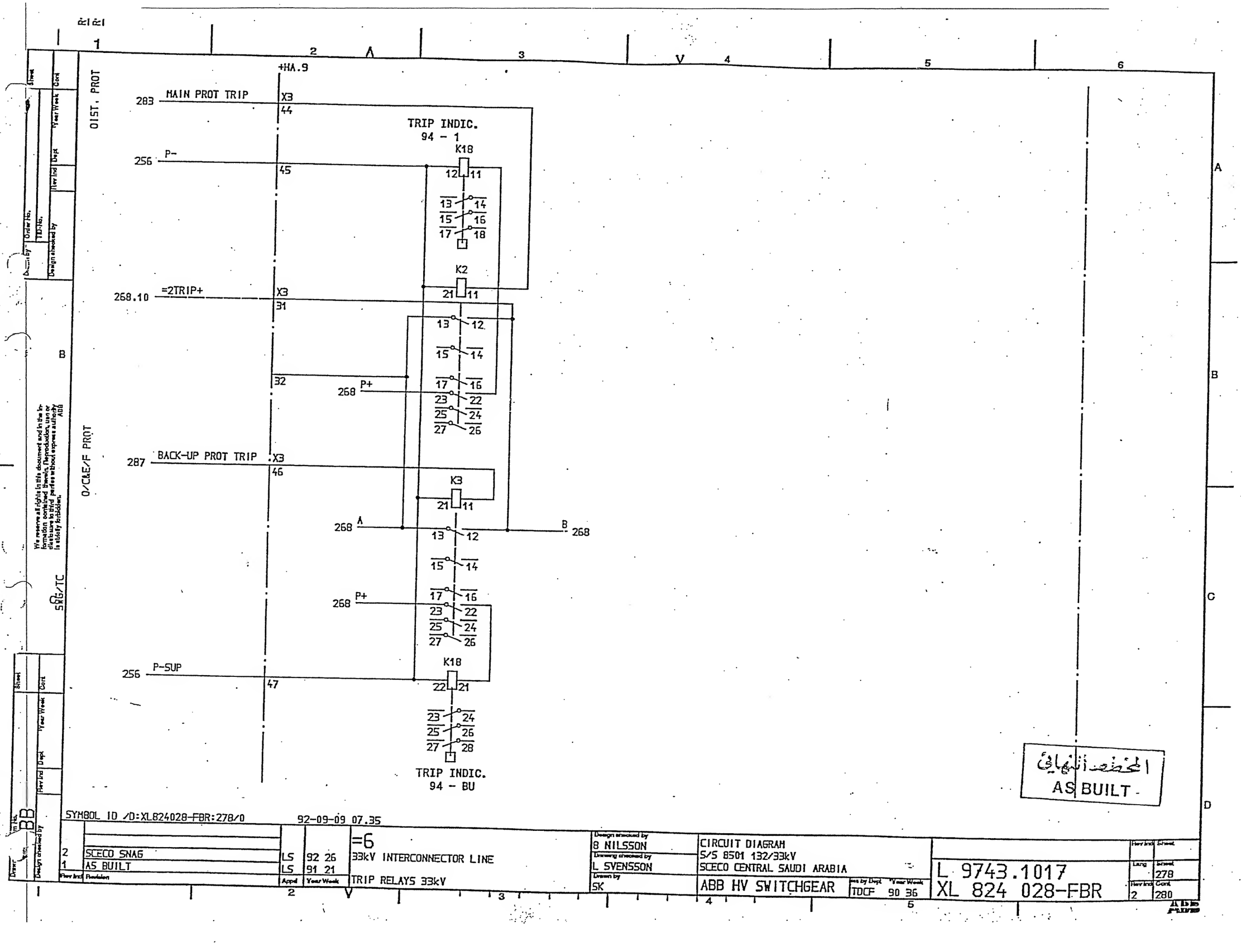
Drawn by | Design checked by | Year Week | Dept | Rev Ind | Sheet | Cont | Order No. | TID-No.


+HA.9
283 MAIN PROT TRIP X3 44
TRIP INDIC.
94 - 1
K18
256 P- 45
12 11
13 14
15 16
17 18
K2
268.10 =2TRIP+ X3 31
21 11
13 12
15 14
32
268 P+
17 16
23 22
25 24
27 26
287 BACK-UP PROT TRIP X3 46
K3
21 11
268 A
B 268
13 12
15 14
268 P+
17 16
23 22
25 24
27 26
K18
256 P-SUP 47
22 21
23 24
25 26
27 28
TRIP INDIC.
94 - BU
O/C&E/F PROT
DIST. PROT
SYMBOL ID /D:XL824028-FBR:278/0
92-09-09 07.35
2 SCECO SNAG LS 92 26
1 AS BUILT LS 91 21
=6
33kV INTERCONNECTOR LINE
TRIP RELAYS 33kV
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
278
280
AS BUILT
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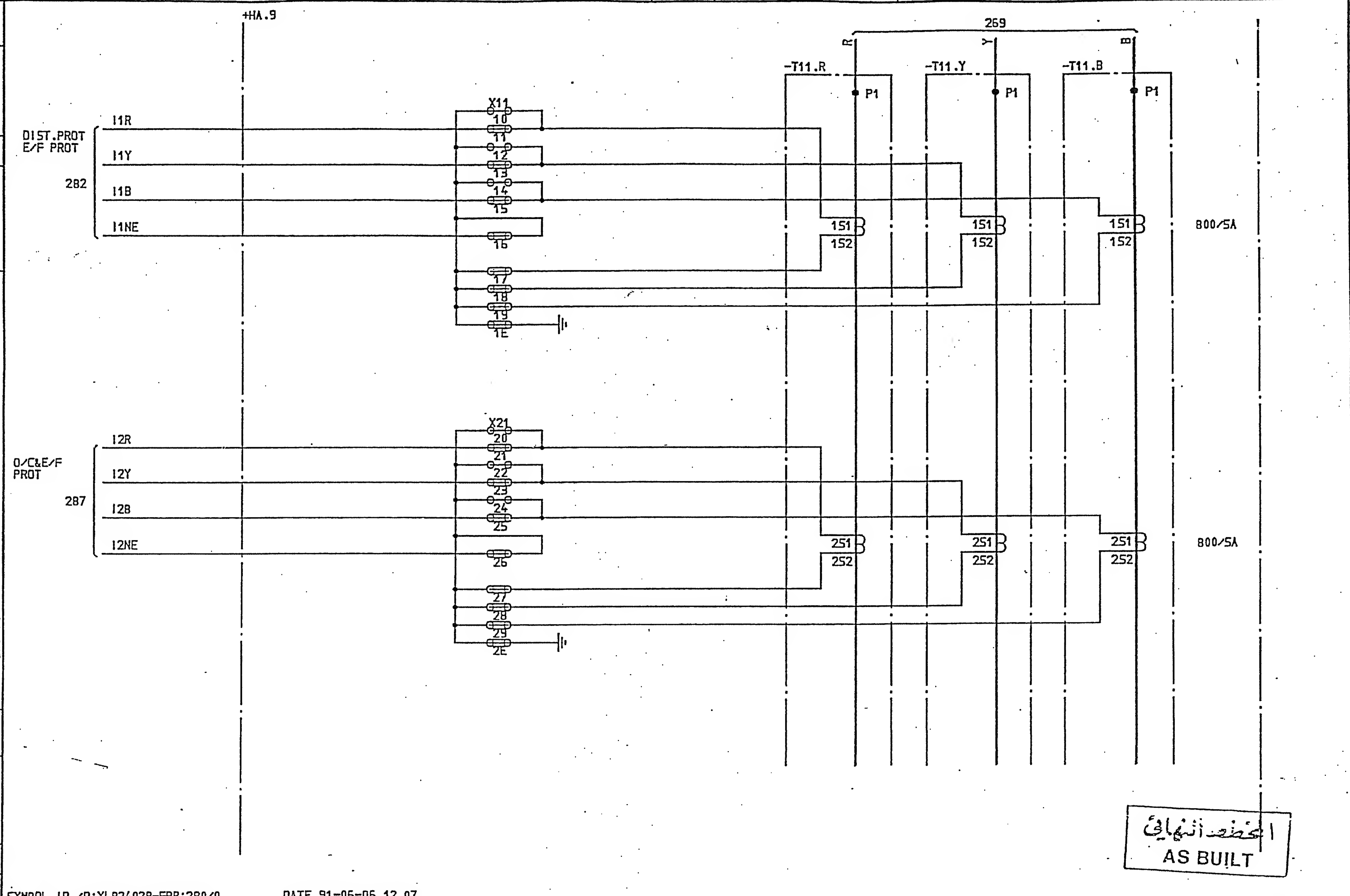


SYMBOL ID /D:XL824028-FBR:280/0 DATE 91-06-06 12.07

1	AS BUILT	LS 91 21
Rev Ind	Revision	Appd / Year Week

=6
33kV INTERCONNECTOR LINE
CURRENT TRANSFORMER -T11

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

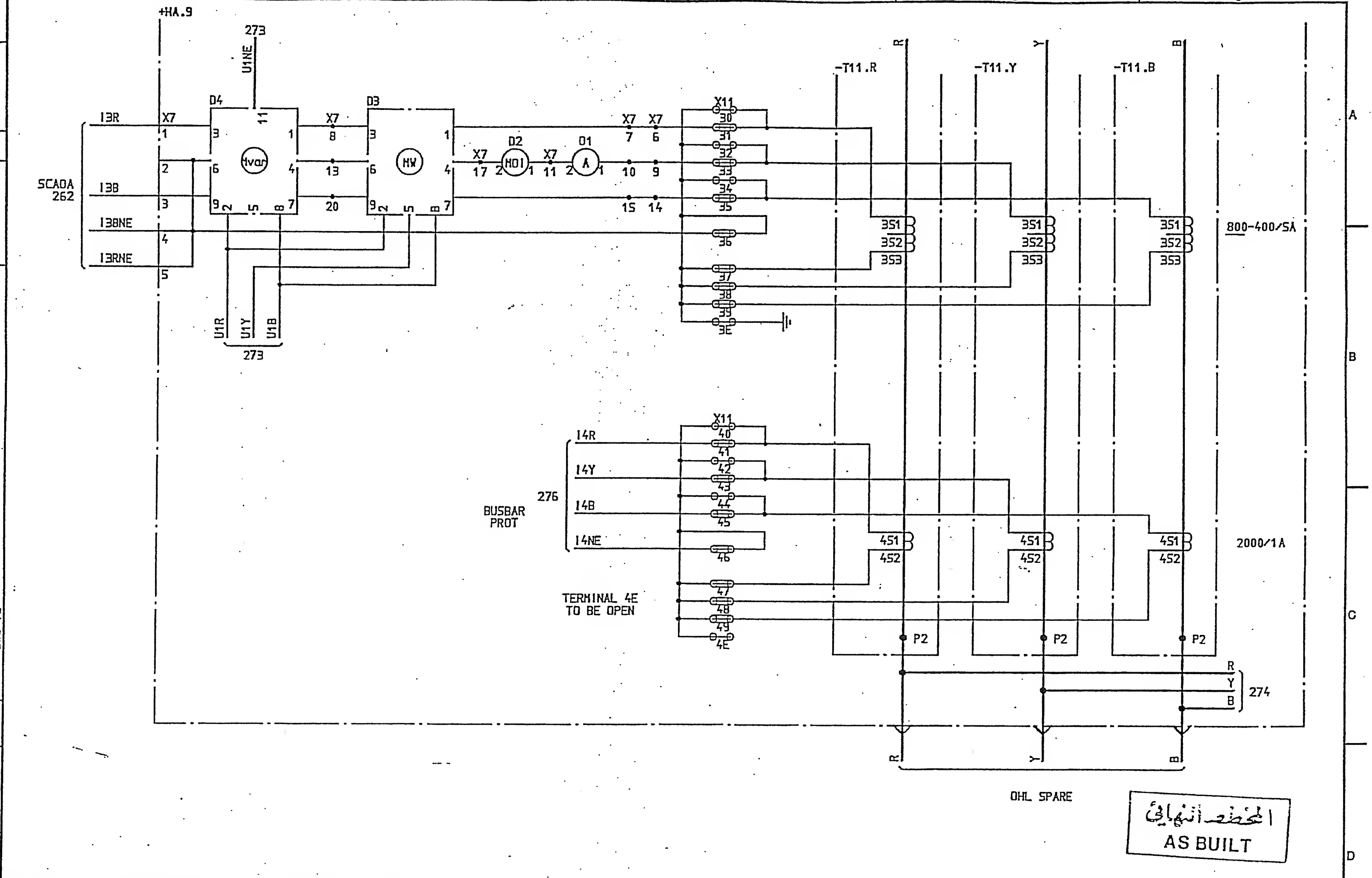
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 280 Cont: 281

SRG/TC



SYMBOL ID /D:XL824028-FBR:281/0 DATE 91-06-06.12.07

Rev Ind	Revision	Appd	Year Week		
1	AS BUILT	LS	91 21	=6 33kV INTERCONNECTOR LINE CURRENT TRANSFORMER -T11	

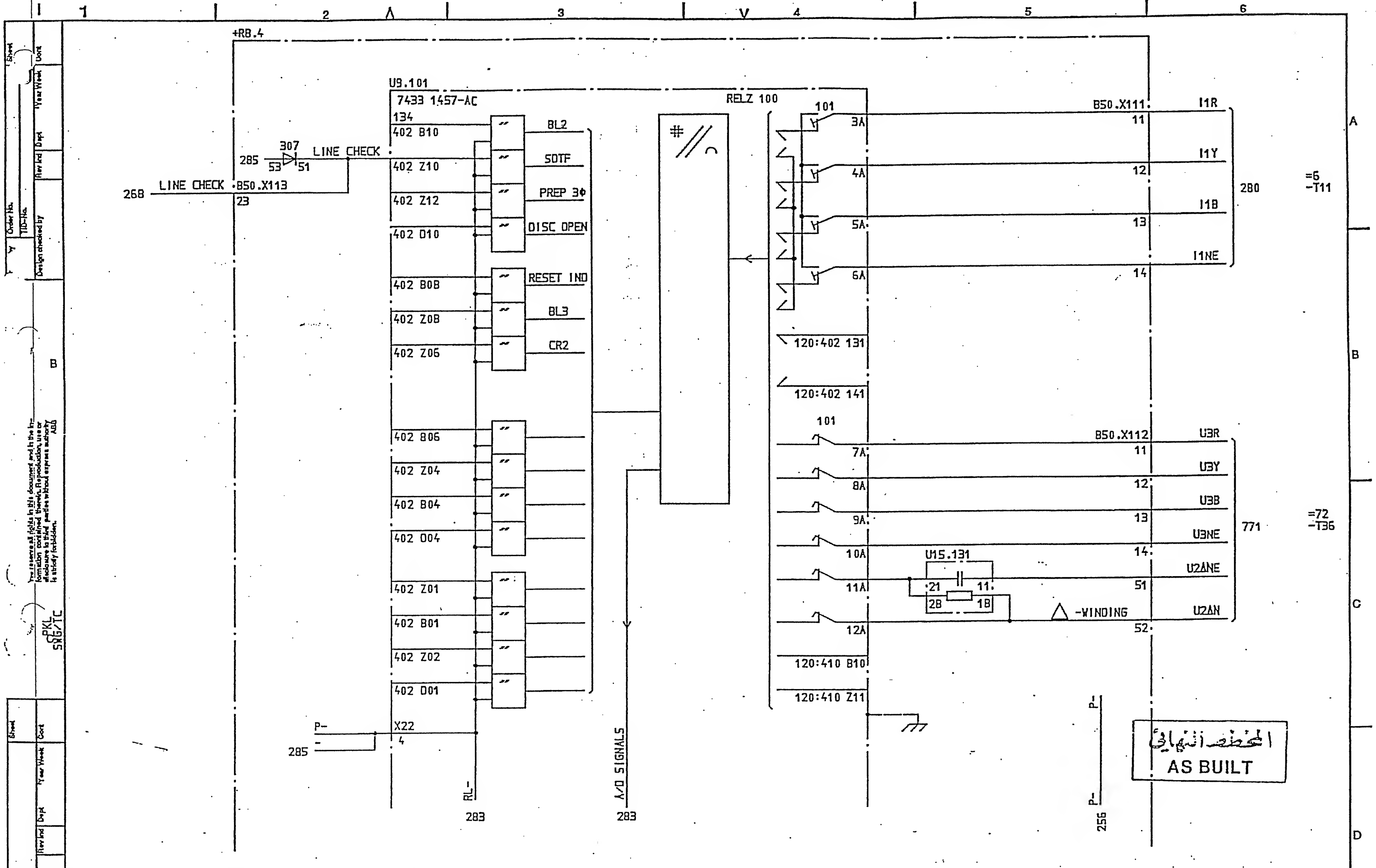
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TOCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 281 Cont: 282 Rev Ind: 1



SYMBOL ID /D:XL824028-FBR:282/0 DATE 91-06-04 09.08

Rev ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
DISTANCE PROTECTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Iss by Dept: TDCF Year Week: 90 16

L= 9743.1017
XL 824 028-FBR

Sheet: 282
Cont: 283
Rev ind: 1

ABB

+RB.4

U9.101

282 RL-

282 A/D SIGNALS

771 VT MCB TRIPPED — BS0.X113 28

27B MAIN PROT TRIP — BS0.X113 27

2BS START A-R

2SS Z< PROT FAULT

2B4 VTS

153:402 Z01 — BL1

153:402 Z05 / 153:402 Z06 — CRG

101:14A / 153:402 Z11 — CR

148:B:X3

148:402 — CS

101:13A / 153:402 D06

TRIP(R)

TRIP(S)

TRIP(T)

101:15A

101:16A

101:17A

153:402 D0B — GEN TRIP

153:402 D01 — GEN START

153:402 D04 — START/BLOCK AR

153:402 D11 — Z< FAILURE

153:402 D10

153:402 Z10 — U<

SIGNALS TO OPTIONAL OUTPUT RELAY UNIT

≥ 1

Z<
3
3
2

FUNCTIONS TO BE SET UNDER "CONF."

SP1

1 0
□□ PSB
□□ PH SEL
□□ SOTF
□□ WEI
□□ VTS

SP2

1 0
□□ DIR
□□ POR
□□ BL

153:402 B10 / 153:402 B11 / 153:402 B04 / 153:402 B01 — 101:12B / 101:12A / 101:11A / 101:18A

153:402 B09 / 153:402 B13 — 501:11 / 501:13

153:402 D12 / 153:402 B12

S4+ P+ P- — 256

2B4 S+ 2BS S+

2B4

2B5

المخطط النهائي
AS BUILT

PKL SWG/TC

SYMBOL ID /D:XLB24028-FBR:283/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6 33kV INTERCONNECTOR LINE

DISTANCE PROTECTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

CIRCUIT DIAGRAM
S/S BS01 132/33kV
SCECO CENTRAL SAUDI ARABIA

Issued by Dept: TDCF *Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 Sheet: 283 Cont: 284

RLKG 100 OPTION

DIAGRAM (SETTING UNDER "CONF")

	1	2	3	4	5	6	7	8	9	10
RELAY										
K1	BLCK	BLCK	T3U	TRI	TRWEI	TRI	BLCK	TRLC	TRLC	TRLC
K2	TRLC	GS	VTS	TRLC	TRLC	TRLC	ST3Io	ST3Io	GS	GS
K5	TRC	PSB	ECHO	PSB	PSB	PSB	PSB	TRC	TRC	TRC
K8	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH	TRIP3PH
K10	GS	FI1	TRZ1	TRIP3PH	SUP	TRIP3PH	TRZ1	TRIP3PH	FI1	TRIP3PH
K3	ZM1	TRZ1	TRC	TRIPR	PSR	TRIPR	TRWEI	TRIPR	TRZ1	ZM1
K14	ZM2	TRZ2	TRLC	TRIPS	PSS	TRIPS	TRLC	TRIPS	TRZ2	ZM2
K15	ZM3	TRZ3	TRWEI	TRIPT	PST	TRIPT	TREF	TRIPT	TRZ3	ZM3
K9	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS
K6	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1	CR1
K7	AR	SUPN	PSB	AR	CS	AR	CS2	AR	CS	GT
K4	NDS	SUPI	SUP	SUP	CR1	SUPI	CR2	SUP	SUP	AR
K11	TRZ1	PSR	PSR	TRZ1	ZM1	CS	CS2	TREF	PSR	PSR
K13	TRZ2	PSS	PSS	TRZ2	ZM2	CR1	CR2	TREF	PSS	PSS
K12	TREF	PST	PST	TRZ3	ZM3	TRC	SUPN	CS2	PST	PST
K16	VTS	PSN	PSN	TRZ3R	ZM3R	TRZ1	SUPI	CR2	PSN	PSN
PLANT ADAPTED PROGRAMMING	X									
STANDARD PROGRAMMING AT DELIVERY										

+RB.4 U9.101 2B3

RLKG 100

K1 K2 K5 K8 K10 K3 K14 K15 K9 K6 K7 K4 K11 K13 K12 K16

286 START A-R — 164 — 402 Z02, 402 Z03, 402 Z05

84 33kV PROT OP
28 33kV PROT DP
BS0. X41 23
Z< PROT OP
O/C-E/F PROT OP
287 (2-50/51+50/51N)
— 402 Z06, 402 Z08, 402 Z01, 402 Z12, 402 Z13, 402 Z07, 402 D01

283 VTS — 402 Z04, 402 O04, 402 D03, 402 O02, 402 Z09, 402 Z11, 402 Z10, 402 Z14

164 — 402 B09, 402 B02, 402 B04, 402 B07, 402 B13, 402 B12, 402 B01, 402 B08, 402 B05

283 S+ P+

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-F8R:284/0 92-07-02 18.54

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
DISTANCE PROTECTION

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

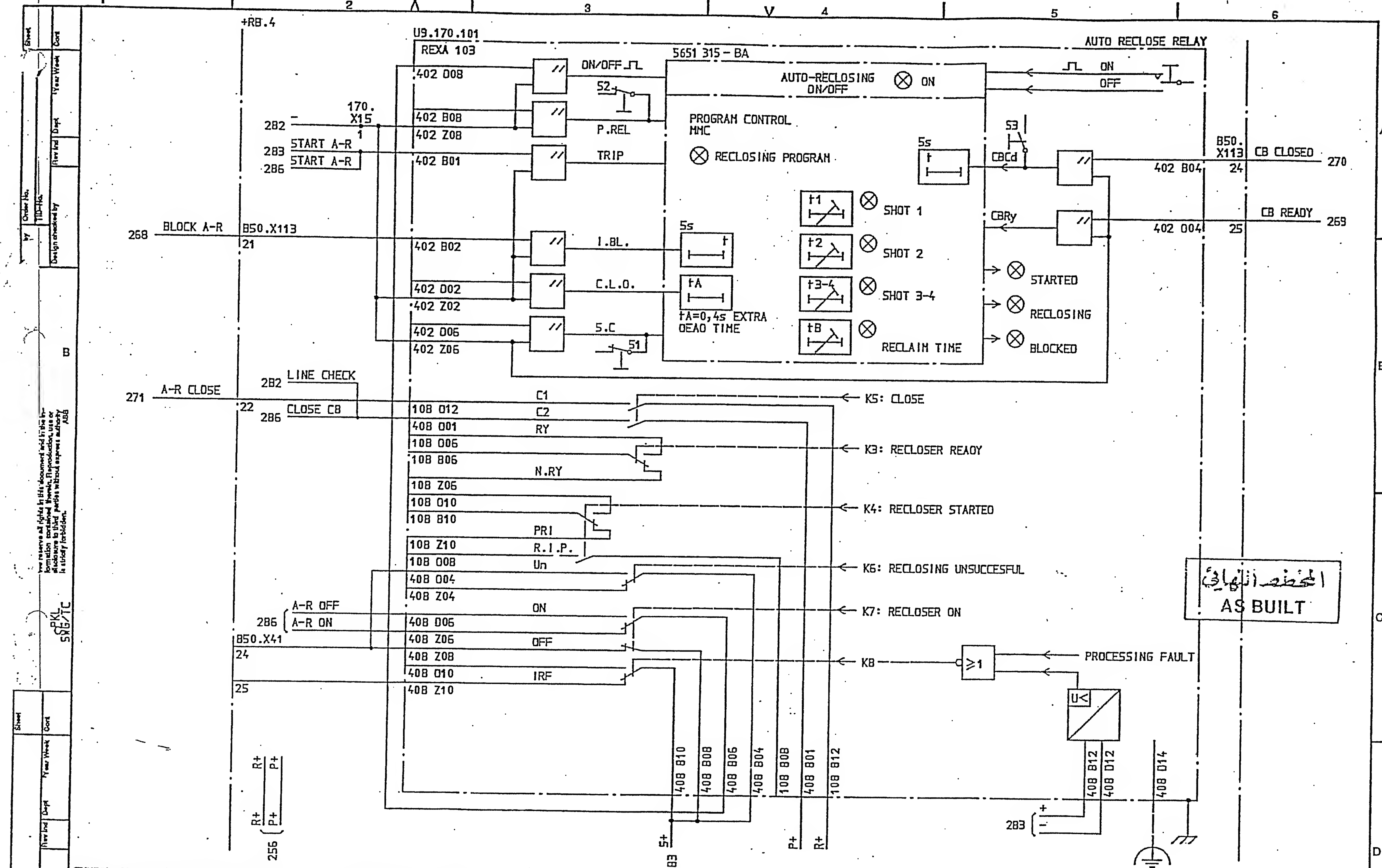
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Use by Dept: TDCF *Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 Sheet: 284 Cont: 285

ABB



SYMBOL ID /D:XL824028-FBR:285/0

DATE 91-06-04 09.08

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
AUTO RECLOSE RELAY

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

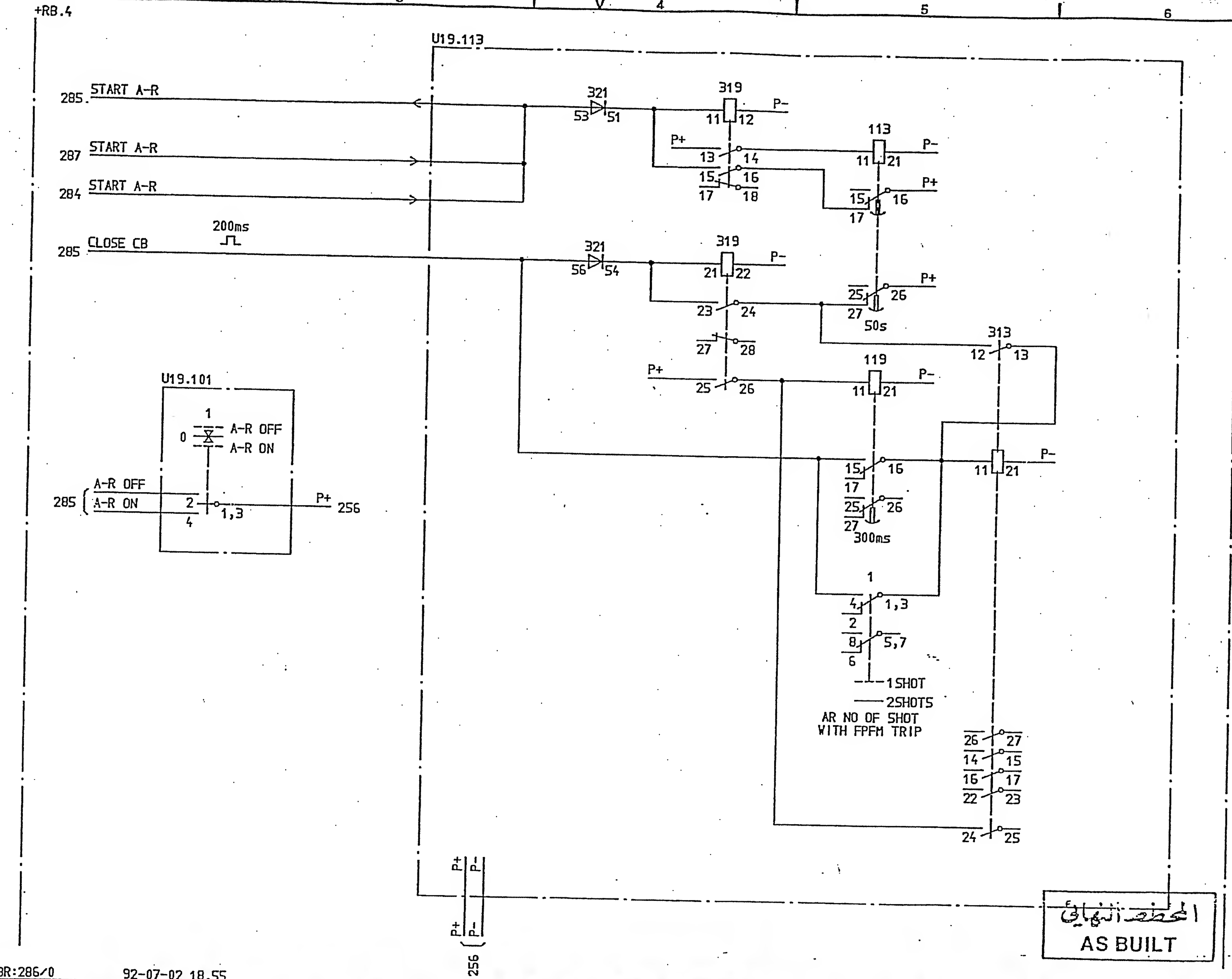
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Iss by Dept: TDCF
Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Lang:
Sheet: 285
Rev Ind: 1
Cont: 286

ABB



SYMBOL ID /0:XL824028-FBR:286/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week			
2	SCECO SNAG	LS	92 26	=6		
1	AS BUILT	LS	91 21	33kV INTERCONNECTOR LINE		
				AUTO RECLOSE LOGIC		

Design checked by B NILSSON
Drawing checked by J SKOVGAARD
Drawn by IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Iss by Dept TDCF Year Week 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind 2-- Lang Sheet 286 Cont 287

ABB

PKL SNG/TC

+RB.4

U15.101
7431 154-EB

O/C AND E/F PROT 2-50/51+50/51N
RAC10

S1:

278 BACK-UP PROT TRIP — B50.X113 26

286 START A-R

284 O/C-E/F PROT OP

255 O/C-E/F PROT FAULTY

101 13A — 107:126

107:323

101 17A — 16A

107:313

107:315

107:417 101 — 1A — 18A — 2A — 107:127 — 107:124 — 107:314 — 107:316 — 107:318 — 107:328

SWITCH 51:7 OPEN

101 3A — 4A — 7A — 8A — 9A — 10A

B50.X111 21 12R — 22 12Y — 23 12B — 24 12NE — 2B0

=6 -T11

54+ — P+ — P- — 256

المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:287/0 DATE 91-06-04 09.08

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=6
33kV INTERCONNECTOR LINE
OVERCURRENT AND EARTH FAULT

Design checked by: B NILSSON
Drawing checked by: J SKOVGAARD
Drawn by: IA

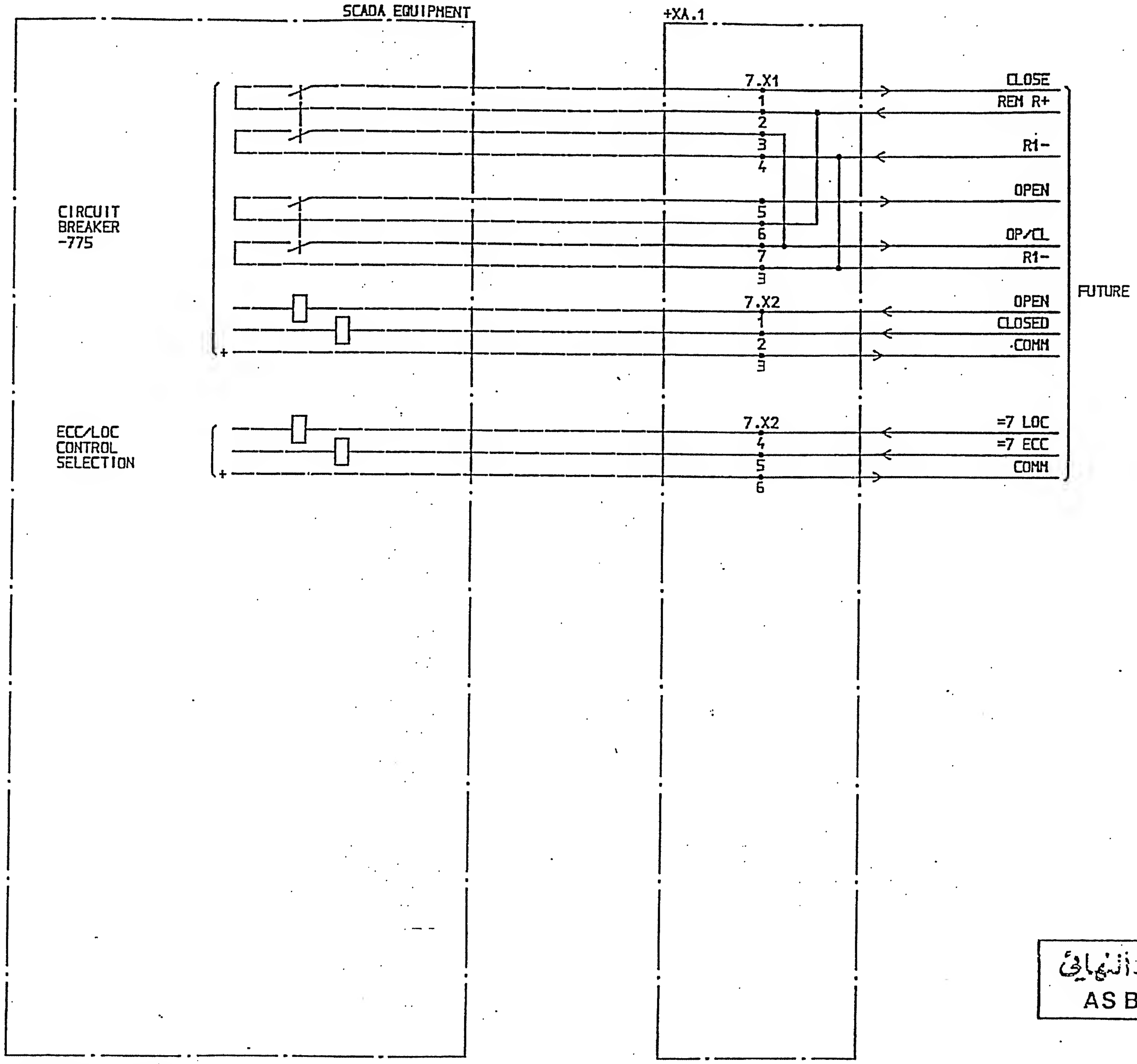
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

Issued by Dept: TDCF Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 287
Lang: Cont: 312

ABB



المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:312/0 DATE 91-06-04 .09.08

1	AS BUILT	LS	91 21	=7 33kV FUTURE LINE SCADA INTERFACE EQUIPMENT

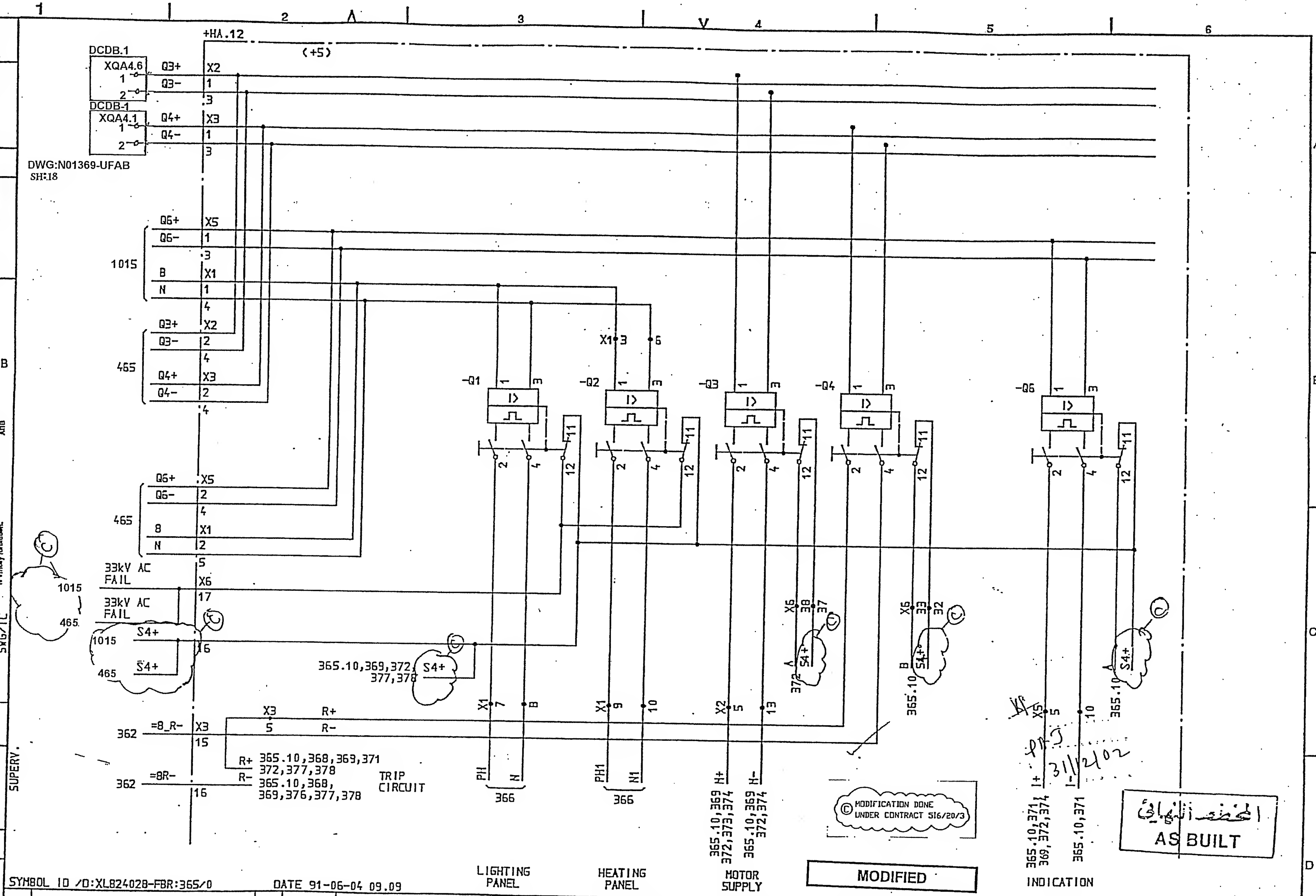
Design checked by: B NILSSON
Drawing checked by: S STRIOSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TCF Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 312 Cont: 351



2 AS BUILT / LS 91 21	=8 33/13,8kV TRANSFORMER BAY T13 DC AUX. VOLTAGE SUPPLY	Design checked by: B NILSSON; Drawing checked by: L SVENSSON; Drawn by: SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA
		ABB HV SWITCHGEAR	TDCF 90 36
L 9743.1017	XL 824 028-FBR	Sheet 365	Cont 365.10

+HA.12

365

PH | N | PH1 | N1

-E125 P

X1 9

-S125 DOOR OPEN / DOOR CLOSED

22 / 21

-R121 1 / 2

X1 11

-E125 1 / 2

-E126 1 / 2

-B121 1 / 2

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:366/0 DATE 91-06-04 09.09

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=8
33/13,8kV TRANSFORMER BAY T13
HEATER AND LIGHT

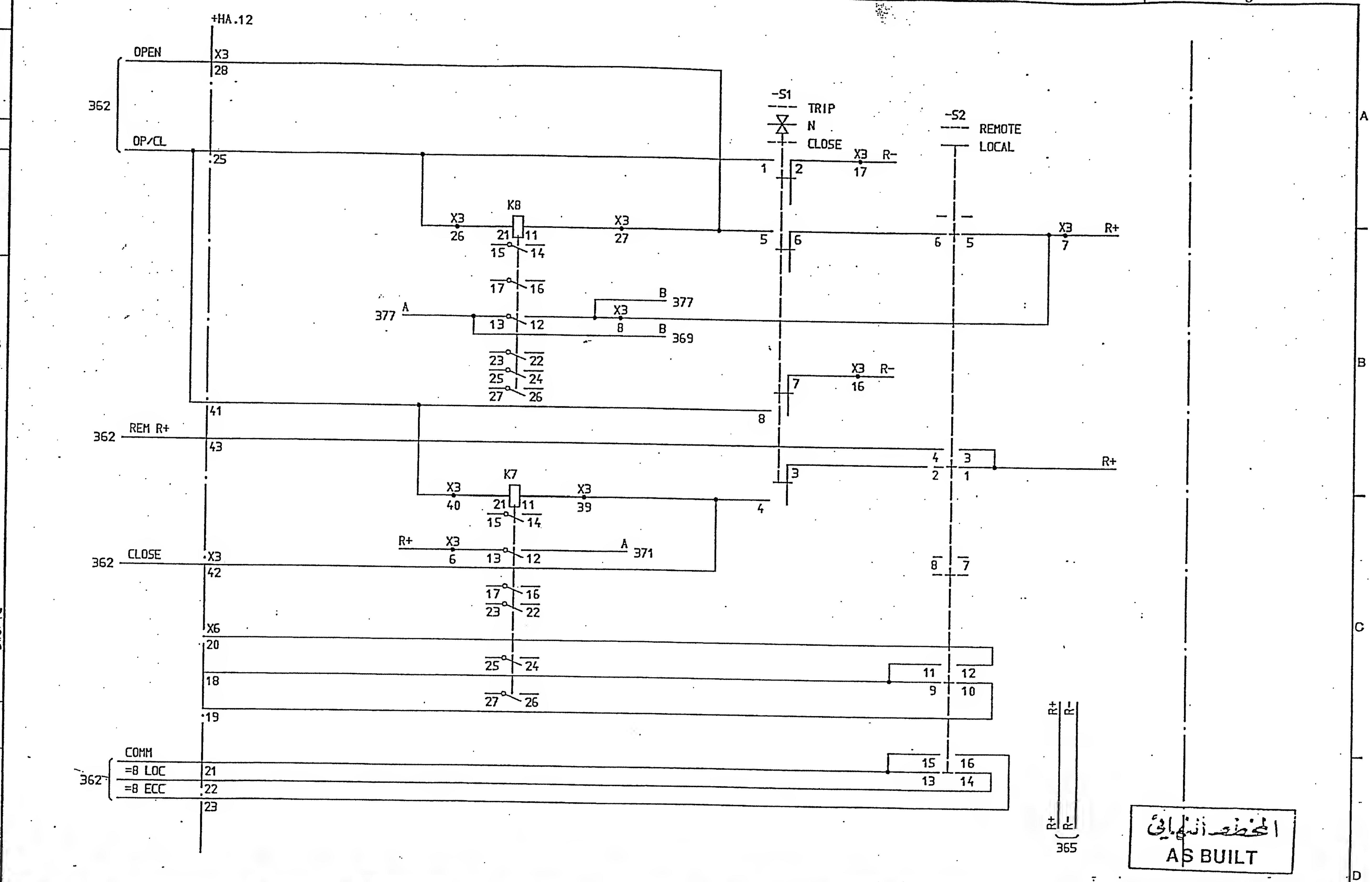
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 366
Lang: Sheet: 366
Rev Ind: 1 Cont: 368

ABB



SYMBOL ID /D:XL824028-FBR:368/0 92-07-02 18.55

Rev ind	Revision	Appd	Year Week			
2	SCECO SNAG	LS	92 26	=8		
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T13		
				C.8 SELECTOR SWITCHES		

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

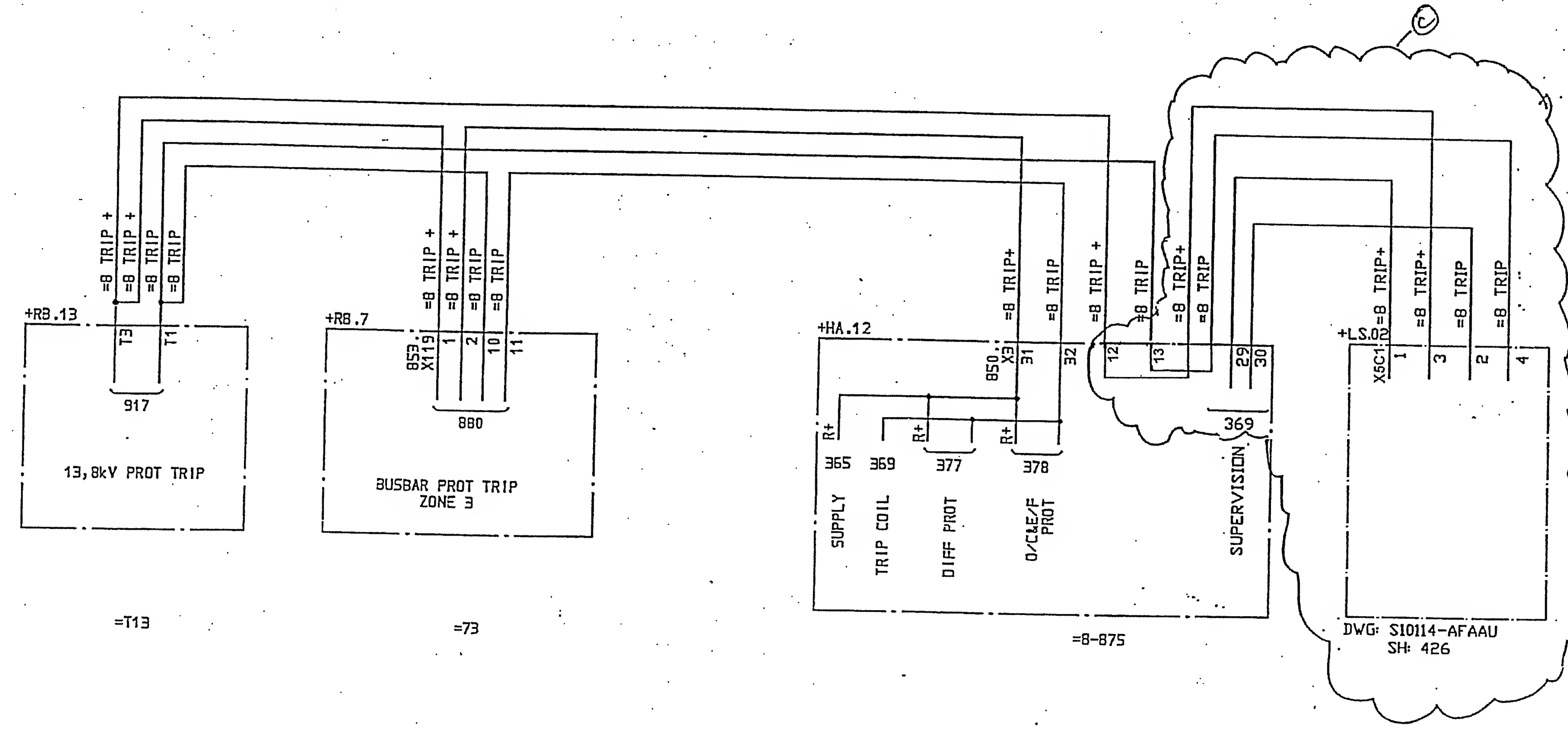
Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 368
Rev ind: 2
Cont: 368.10

ABB

SVG/TC



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3/12/02

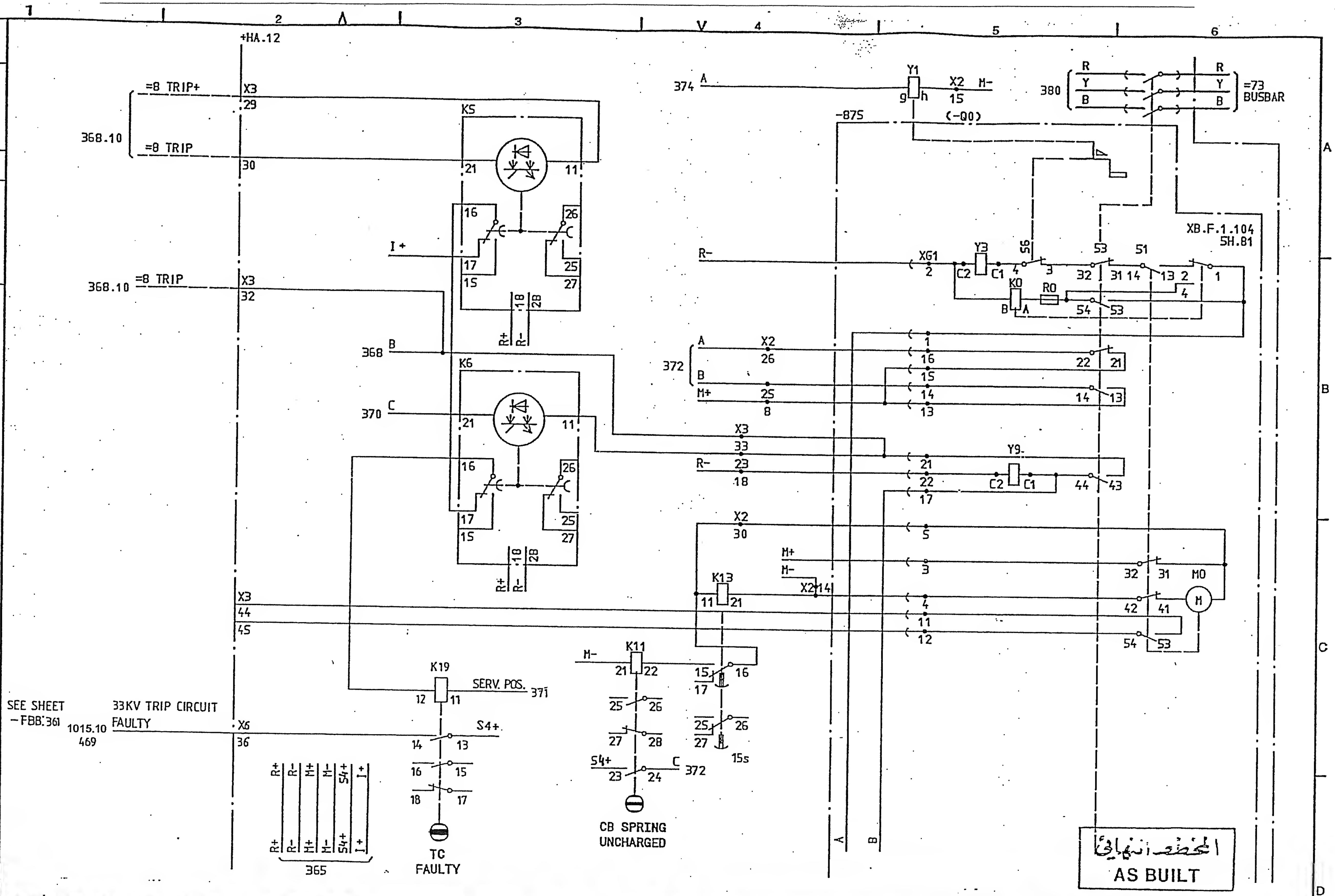
المخطط النهائي
AS BUILT

MODIFIED

SYMBOL ID /D:XL824028-FBR:368.10/0 DATE 91-06-04 09.09

Rev Ind	Revision	Appd	Year Week		Design checked by / Drawing checked by / Drawn by			
1	AS BUILT	LS	91 21	=8 33/13,8kV TRANSFORMER BAY T13 PROTECTION TRIP CIRCUIT	B NILSSON L SVENSSON SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	Iss by Dept TDCF Year Week 90 36	L 9743.1017 XL 824 028-FBR Sheet 368.10 Rev Ind 1 Cont 369

SRG/TC



SYMBOL ID /D:XL824028-FBR:369/0 92-07-02 18.55

2.1	SCECO SNAG	LS	92 26	=8
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T13
Rev Ind	Revision	Appd	Year Week	CIRCUIT BREAKER EQUIPMENT -875

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet 369 — Cont 370 — Rev Ind 2.1

+HA.12

-875 (-00)

X6
48
47
46
X3
47
X6 45
50
42
49
44
43
41
40

926 B

369 C X3 24

D 371

XG1 9
10 18
Y2 C2 C1
54 14 13

XG2 14
54 53
XG1 13
20 42 41
19
XG2 16
32 31
15
4 22 21
3

55 2 14 13
1
6 44 43
5
10 54 53
9
12 32 31
11
8 22 21
7

G

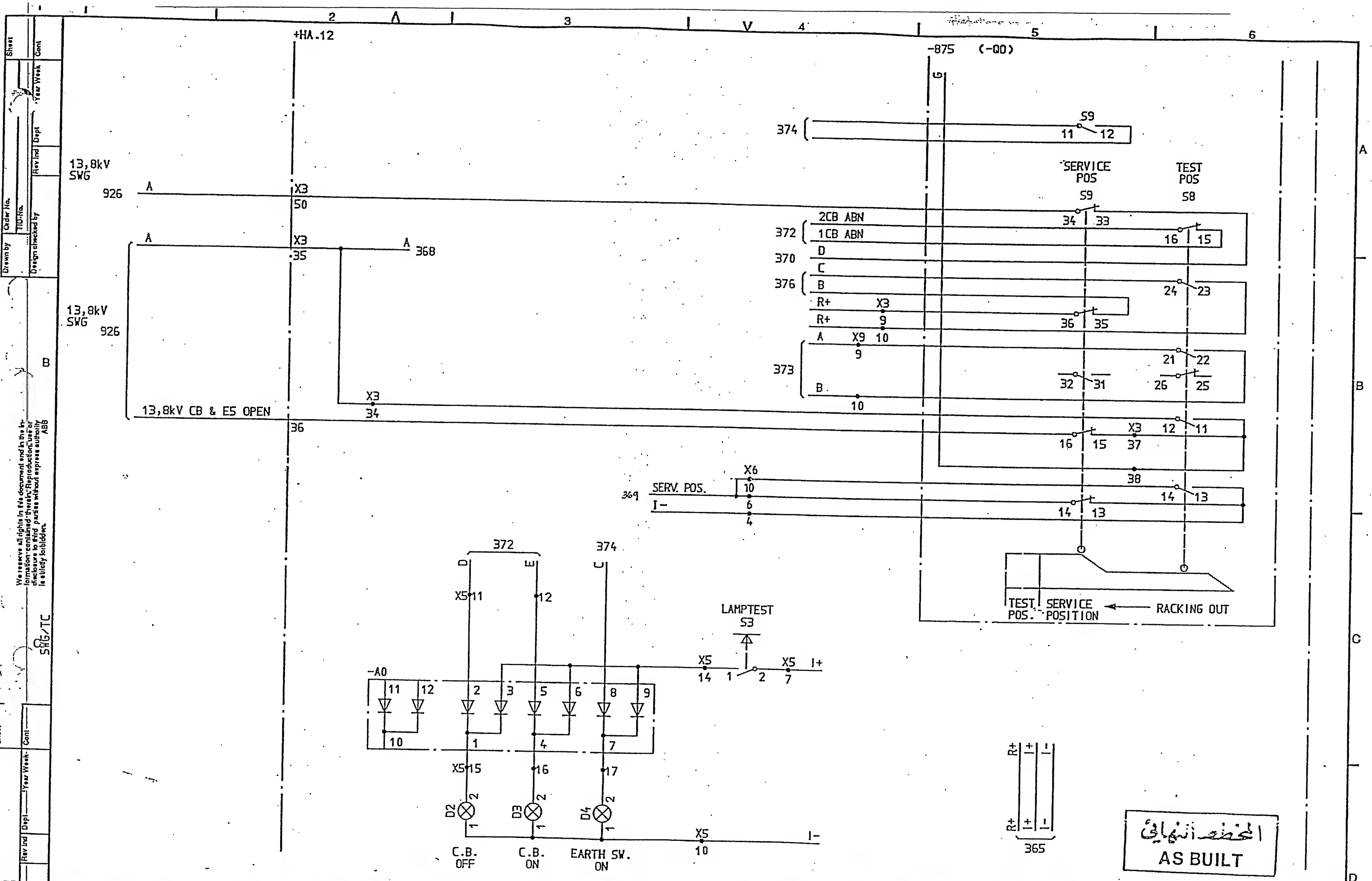
المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:370/0 DATE 91-06-13 13.30

					=8	Design checked by B NILSSON	CIRCUIT DIAGRAM			
					33/13,8kV TRANSFORMER BAY T13	Drawing checked by L SVENSSON	S/S 8501 132/33kV			
1	AS BUILT	LS	91 21				SCECO CENTRAL SAUDI ARABIA			
Rev Ind	Revision	Appd	Year Week		CIRCUIT BREAKER EQUIPMENT -875	Drawn by SK	ABB HV SWITCHGEAR	Ins by Dept TDCF	Year Week 90 36	L 9743.1017 XL 824 028-FBR

Rev Ind 1 | Sheet 370 | Cont 371

ABB



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SYMBOL ID /D:XL824028-FBR:371/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=8
33/13,8kV TRANSFORMER BAY T13
CIRCUIT BREAKER EQUIPMENT -875

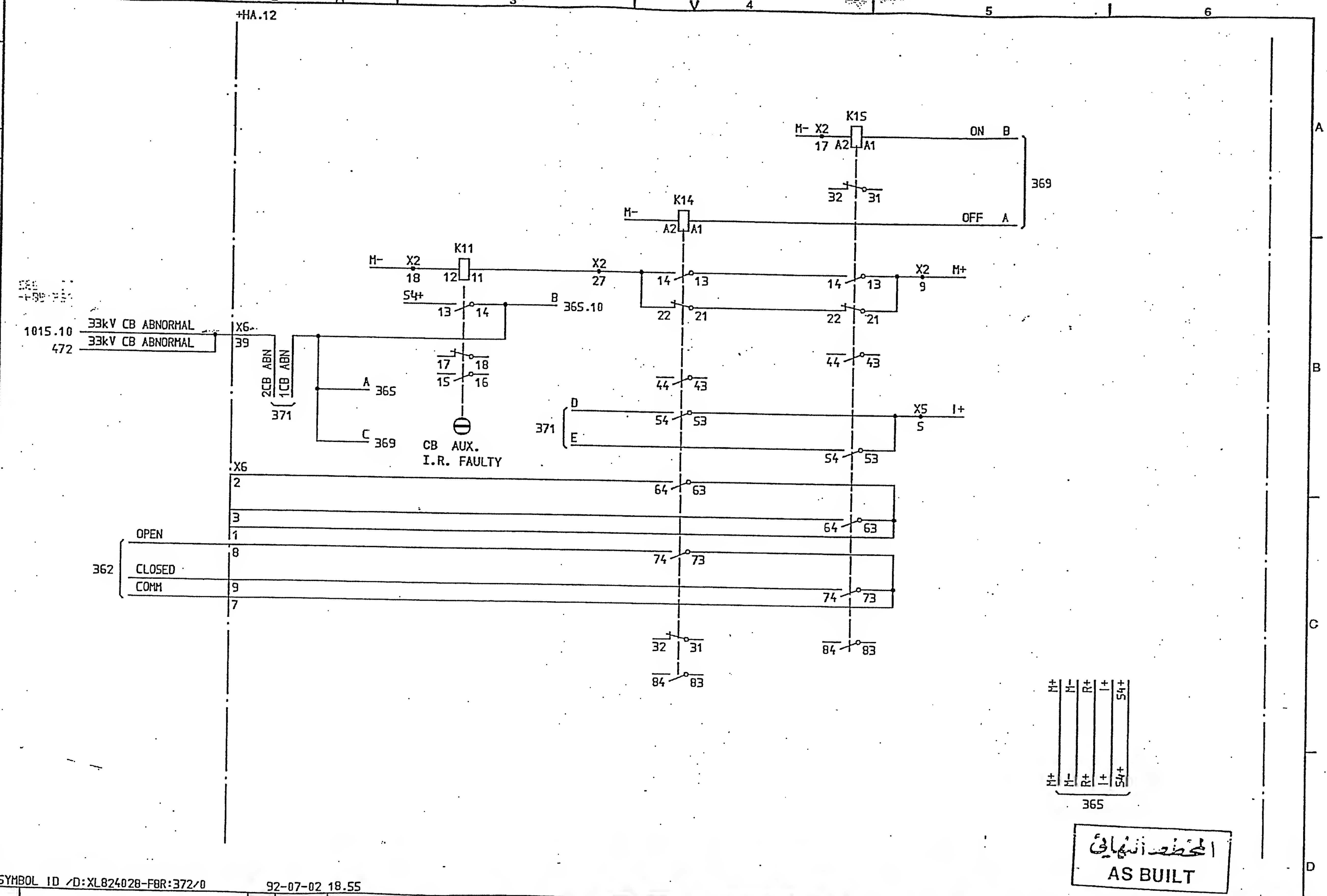
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR | Iss by Dept: TDCF | Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2.1 | Sheet: 371 | Cont: 372



SYMBOL ID /D:XL824028-FBR:372/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week		
2	SCECO SNAG	LS	92 26	=8	
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T13	
				CIRCUIT BREAKER EQUIPMENT -875	

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824.028-FBR

Rev Ind: 2 — Sheet: 372 — Cont: 373

ABB

+HA.12

X9

A
M-
5
7
1024
C
2
371
A
B
3
A
6
M-
8
473
C
1
B
371
B
4

K16
A1 A2

M+ X2 6 13 14 C 374
22 21
34 33
44 43

X0
1 2
3 4

SECONDARY PLUG & SOCKET

U1R
U1Y
U1B
U1NE
X8
1
3
5
7
1024

U1R
U1Y
U1B
U1NE
2
4
6
8
473

H+
H+
365

المخطط النهائي
AS BUILT

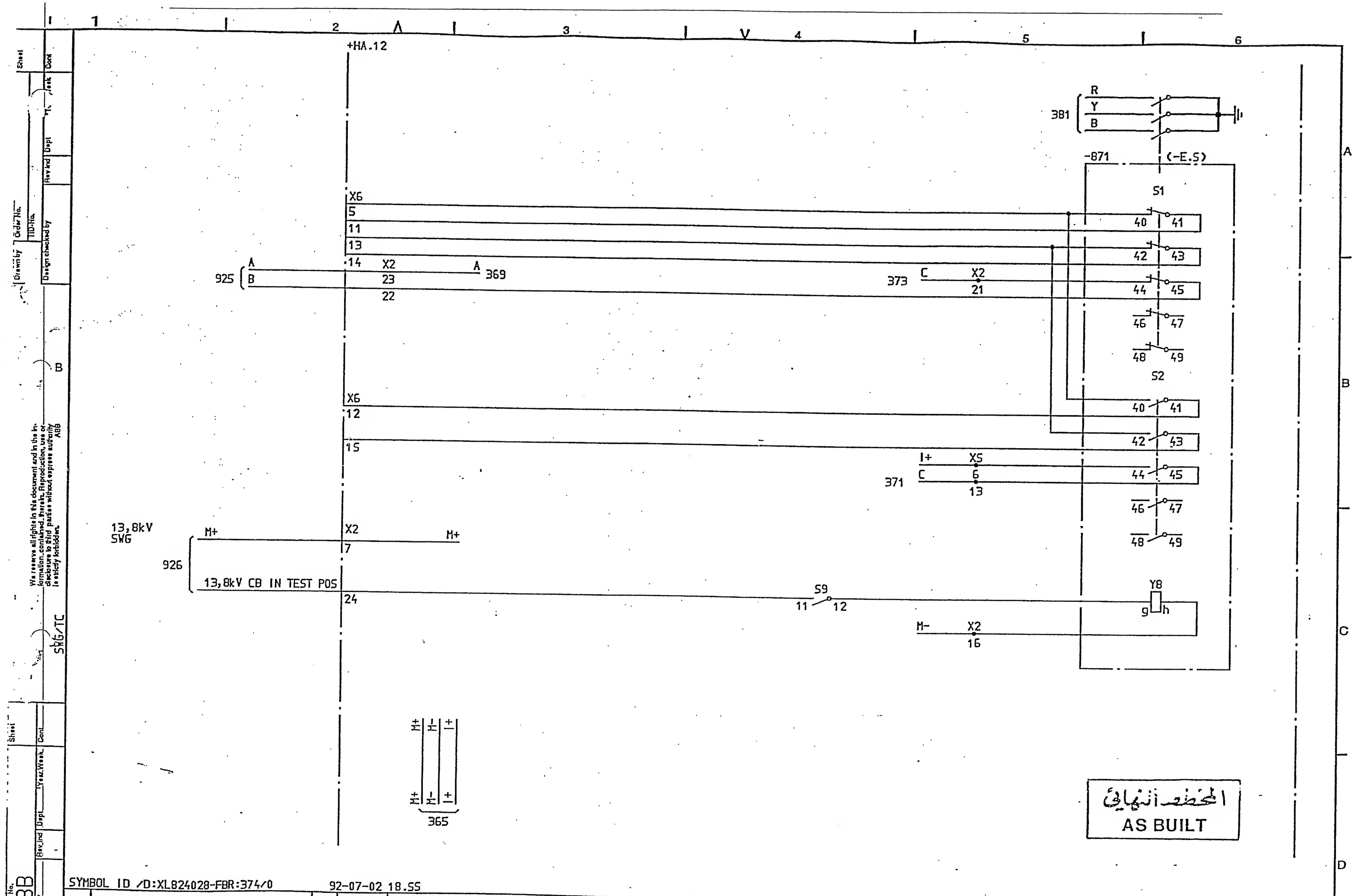
SYMBOL ID /0:XLB24028-FBR:373/0 DATE 91-06-06 12.12

Drawn by / Form No. SB	Design checked by B NILSSON	CIRCUIT DIAGRAM			Rev Ind.	Sheet
Design checked	Drawing checked by L SVENSSON	5/5 B501 132/33kV			Lang	Sheet 373
1 AS BUILT	Drawn by SK	SCECO CENTRAL SAUDI ARABIA		L 9743.1017	Rev Ind. 1	Cont. 374
Rev Ind. Revision		ABB HV SWITCHGEAR	Dept TDCF Year Week 90 36	XL 824 028-FBR		

=8
33/13,8kV TRANSFORMER BAY T13
INTERLOCKING RELAY FOR C.B. TRUCK

LS 91 21
Appd Year Week

SRG/TC



SYMBOL ID /D:XL824028-FBR:374/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week					
2	SCECO SNAG	LS	92 26	=8	Design checked by B NILSSON	CIRCUIT DIAGRAM	L 9743.1017	Sheet 374
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T13	Drawing checked by L SVENSSON	S/S 8501 132/33kV	XL 824.028-FBR	Cont 376
				EARTH SWITCH EQUIPMENT -871	Drawn by SK	SCECO CENTRAL SAUDI ARABIA		Rev Ind 2
						ABB HV SWITCHGEAR	Iss by Dept TDCF	Year Week 90 36

+HA.12

BUS DIFF

X3 C 21 — 371 TEST POS

K12

R- 211 — 212 — B 20 — 371 SERVICE POS

121 — 122 — X3 22

882

14R	X7 16	113	114	14R
14Y	17	115	116	14Y
14B	18	117	118	14B
14NE	19	123	124	14NE

381

213 — 214
227 — 228
225 — 226
223 — 224

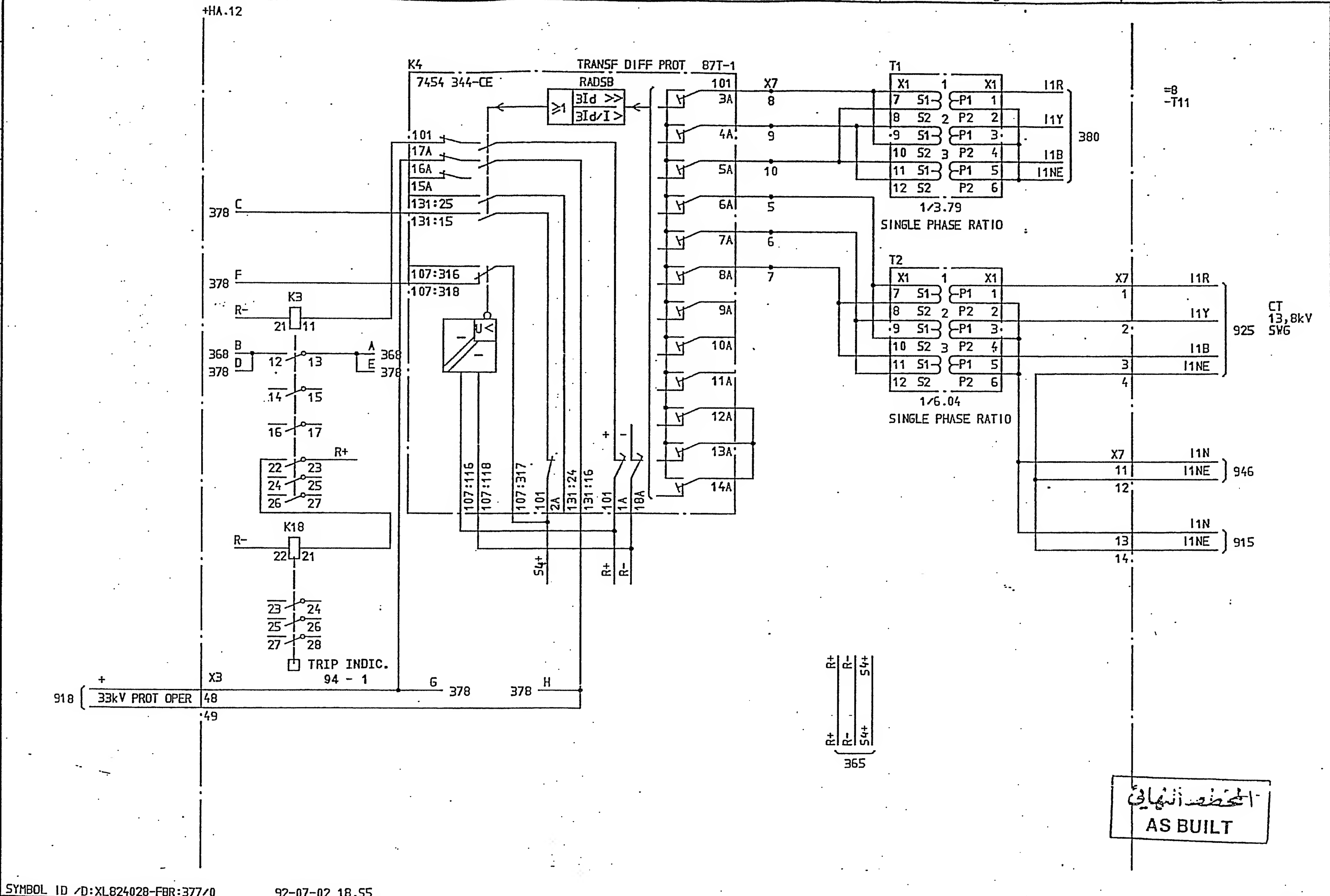
R-
R-
365

المخطط النهائي
AS BUILT

SYMBOL ID /D:XLB2402B-FBR:376/0 DATE 91-06-04 09.09

Drawn by: SK	Design checked by: B NILSSON	=8 33/13,8kV TRANSFORMER BAY T13	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017 XL 824 028-FBR	Rev Ind 1
Form No. BB	Drawing checked by: L SVENSSON				Sheet 376
Design checked by:	Drawn by:	C.T. SHORTING RELAY	ABB HV SWITCHGEAR		Cont 377
1 AS BUILT LS 91 21			Dept TDCF Year Week 90 36		

ABB



SYMBOL ID /D:XL824028-FBR:377/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT.	CS	91 21

=8
33/13,8kV TRANSFORMER BAY T13
TRANSFORMER DIFFERENTIAL PROT

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept: TDCF Year Week: 90 16

L 9743.1017
XL 824 028-FBR

Lang / Sheet 377
Rev Ind 2 / Cont 378

+HA.12

K18
R-
12 11
13 14
15 16
17 18
. TRIP INDIC.
94 - 2

K2
21 11
13 12
15 14
17 16
23 22
25 24
27 26
R+

K1
7431 154-AB

O/C&E/F PROT.
RACID
R S T
N
I >
I >>
I ⏚>
I ⏚>>
51:
1 2 3 4 5 6 7 8

101
3A 4A 5A 6A 7A 8A 9A 10A
12R 12Y 12B 12NE
380

33kV PROT OP
178
33kV PROT OP
378
368.10 =1 TRIP+
905 +
917 HV O/C TRIP

X6 377 C
31
X3
31
32
377 D E
51
X6
377 G H 377
30 X3
52

13A
107:126
107:323
17A
16A
51+ 107:313
107:315
54+

107:417 101
1A 16A 2A
107:127
107:124
107:314
107:316
107:318
107:328

R+ R- PE
165.10 A
377 F

R+ R- S4+
R+ R- S4+
365

المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-F8R:378/0 92-07-02 18.55

Rev Ind	Revision	Appd	Year Week	
2	SCECO SNAG	LS	92 26	=8
1	AS BUILT	LS	91 21	33/13,8kV TRANSFORMER BAY T13
				OVERCURRENT PROT 33kV

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issue by Dept TDCF Year Week 90 16

L 9743.1017
XL 824 028-FBR
Rev Ind 2 Sheet 380
Lang Sheet 378

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ABB

+HA.12

DIFF
PROT

377

I1R
I1Y
I1B
I1NE

X11
10
11
12
13
14
15
16
17
18
19
1E

369

R
Y
B

-T11.R
-T11.Y
-T11.B

P1
P1
P1

1S1
1S2
1S1
1S2
1S1
1S2

800/5A

D/C & E/F
PROT

378

I2R
I2Y
I2B
I2NE

X21
20
21
22
23
24
25
26
27
28
29
2E

2S1
2S2
2S1
2S2
2S1
2S2

800/5A

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:3B0/0 DATE 91-05-04 09.10

=8	Design checked by B NILSSON	CIRCUIT DIAGRAM		Rev Ind	Sheet
33/13,8kV TRANSFORMER BAY T13	Drawing checked by L SVENSSON	S/S 8501 132/33kV	L 9743.1017	Lang	Sheet 380
CURRENT TRANSFORMER -T11	Drawn by SK	SCECO CENTRAL SAUDI ARABIA	XL 824 028-FBR	Rev Ind 1	Cont 381
1 AS BUILT LS 91 21		ABB HV SWITCHGEAR TDCF 90 36			

ABB

+HA.12

13R
13N
SCADA
362

X7
21
20
25
27
26
29
28

D2 MD1 2 1
X7 24
D1 A 2 1
X7 23
X7 22

X11
30
31
32
33
34
35
36
37
38
39
3E

-T11.R
-T11.Y
-T11.B

351
352
353

800-400/5A

14R
14Y
14B
14NE

376
BUSBAR PROT

X11
40
41
42
43
44
45
46
47
48
49
4E

TERMINAL 4E TO BE OPEN

451
452

2000/1A

P2

R
Y
B
374

33/13,8kV TRANSFORMER T13
=T13

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:381/0 DATE 91-06-04 09.10

				=8	Design checked by B NILSSON	CIRCUIT DIAGRAM	Rev Ind / Sheet
				33/13,8kV TRANSFORMER BAY T13	Drawing checked by L SVENSSON	S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017
1	AS BUILT	LS	91 21	CURRENT TRANSFORMER -T11	Drawn by SK	ABB HV SWITCHGEAR	Lang / Sheet 381
Rev Ind	Revision	Appd	Year Week			Issued by Dept / Year Week TDCF 90 36	XL 824 028-FBR Rev Ind 1 / Cont 451

ABB

ITEM	DESIGNATION	SHEET
+KA.2	VOLTAGE DISTRIBUTION	457
+XA.1	SCADA INTERFACE EQUIPMENT	462
+HA.13	AUX. VOLTAGE SUPPLY	465
	HEATING AND LIGHTING	466
	C.B. OPERATION CIRCUITS	468
-1075	CIRCUIT BREAKER EQUIPMENT	469
	INTERLOCKING	473
-1071	EARTH SWITCH EQUIPMENT	474
	OVERCURRENT PROT.	478
-T30	CURRENT TRANSFORMER	480
-1071	EARTH SWITCH EQUIPMENT	485
-1075	CIRCUIT BREAKER EQUIPMENT	490
-405	405 CB CLOSING AND TRIPPING CIRCUIT	491-493
-1075	1075 CB CLOSING AND TRIPPING CIRCUIT	494-495
-1075	1075 DC SUPPLY LOOPING ±R1&±R2	496-497

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL82402B-FBR:451/0 DATE 91-06-04 09.10

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=10
33kV INCOMING TRANSFORMER BAY
LIST OF CONTENTS

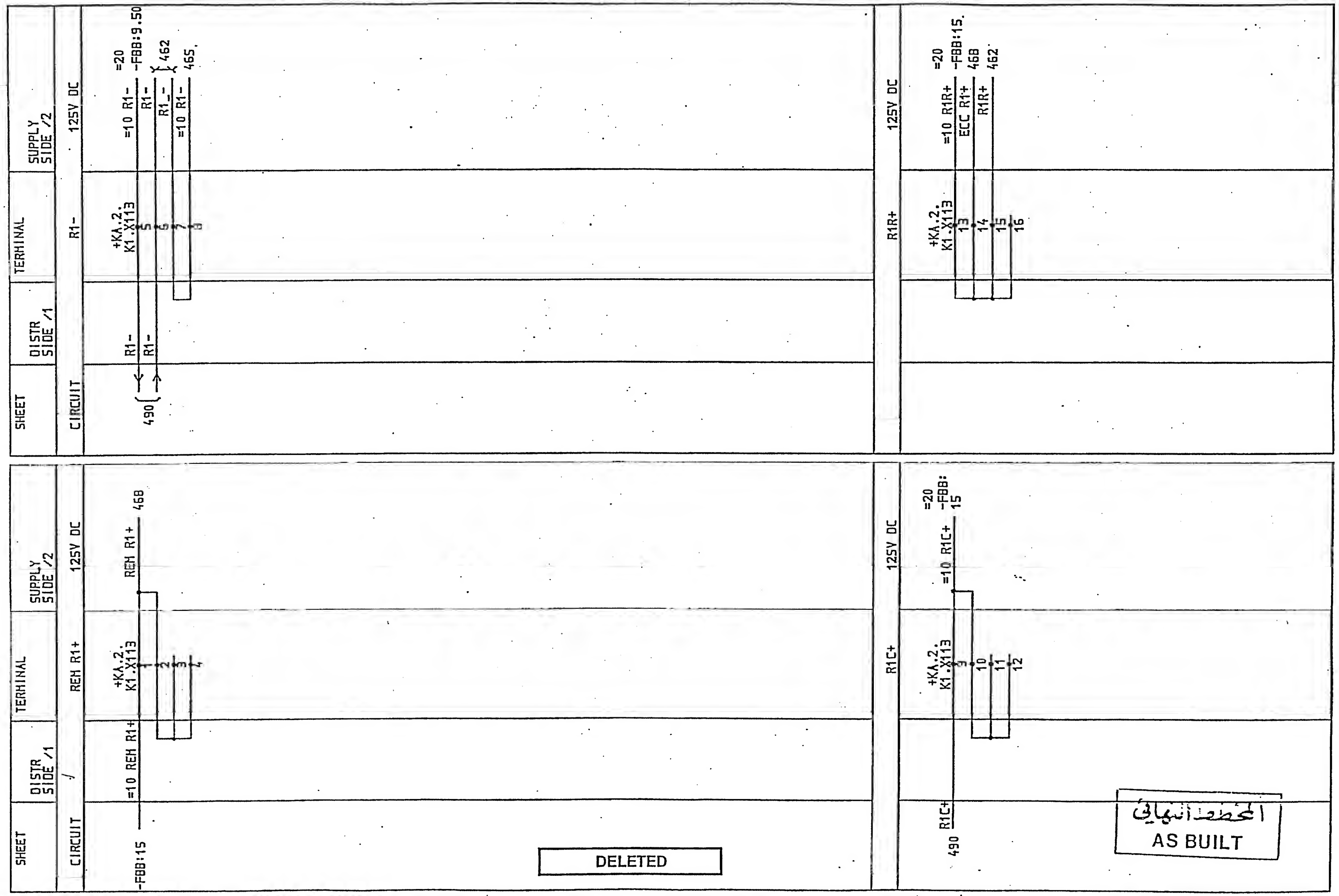
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Ins by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 457
Lang: Sheet: 451
Rev Ind: Cont:



SYMBOL ID /D:XL824028-FBR:457/0 DATE 91-06-04 09.10

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=10
33kV INCOMING TRANSFORMER BAY
CB OPERATION
VOLTAGE DISTRIBUTION

Design checked by: B NILSSON
Drawing checked by: S STRIOSMAN
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TCF Year Week: 90 10

L 9743.1017
XL 824 028-FBR

Rev Ind: 1 Sheet: 457 Cont: 462

ABB

SCADA EQUIPMENT

+XA.1

CIRCUIT BREAKER -1075

ECC/LOC CONTROL SELECTION

10.X1
1 CLOSE
2 R1R+
3
4 R1-
5 OPEN
6
7 OP/CL
8 R1_-

10.X2
1 OPEN
2 CLOSE
3 COMM
472

10.X2
4 =10 LOC
5 =10 ECC
6 COMM
468

TO +K04
+GT2, AAH-165

TO +K04
+GT2, AAH-172

DELETED

MODIFICATION DONE UNDER CONTRACT 516/20/3

31/12/02

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:462/0 DATE 91-06-04 09.10

1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY	B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017
				SCADA INTERFACE EQUIPMENT	S STRIDSMAN	ABB HV SWITCHGEAR TCF 90 10	XL 824 028-FBR
					IA		462

+HA.13
(+5)

Q3+ X2
Q3- 1
3
365
Q4+ X3
Q4- 1
3
=AL.DC.125 Q5+ X4
-FBU:117 Q5- 1
3
Q6+ X5
Q6- 1
3
365
B X1
N 1
4
Q3+ X2
858 Q3- 2
4
X3
2
4
X5
2
4
SEE SHEET 8 X1
-FBB:361 868 N 2
5
33kV AC SUPPLY FAIL X6
365
17
33kV AC SUPPLY FAIL
868
365 S1+
16
868 S1+
=10R1+ X3 R1+
468.10 =10 R1- 5 R1-
15
-20 132kV -FBB:9.50
=10 R1+ R1+ 465.10,468,469, 471,472
=10 R1- 16 R1- 465.10,468, 469,476
457
16
SUPERV.

465.10,469, 470,472,478 S1+

-Q1 -Q2 -Q3 -Q4 -Q5 -Q6
I> 1 3 11 12 2 4
X1 3 6

X1 7 8 PH N 466
X1 9 10 PH1 N1 466
X2 5 13 H+ H- 465.10,469 472,473,474 / 465.10,469 472,474
X6 34 33 A 472 S1+
X6 30 29 B 465.10 S1+
X4 5 10 6 11 R2+ R2- 465.10,470 478 / 465.10,470 478
X5 5 10 I+ I- 465.10,471 469,470,472,474 / 465.10,471
A 465.10 S1+

TRIP CIRCUIT No1
LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
EXISTING TO BE MODIFIED
TRIP CIRCUIT NO2
INDICATION
AS BUILT

SYMBOL ID /0:XL824028-FBR:465/0 DATE 91-06-04 09.10

1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017 XL 824 028-FBR
					Drawing checked by L SVENSSON		
				DC AUX. VOLTAGE SUPPLY	Drawn by SK	ABB HV SWITCHGEAR TDCF 90 36	Sheet 465 Cont 465.10

+HA.13

K9
R1+ X3 13 11 12 R1-
13 14
15 16 A 478
17 18
LOSS OF DC SUPPLY R1+/-

K10
M+ X2 10 11 12 X2 19 M-
13 14
S1+ 15 16 B 472
17 18
LOSS OF DC SUPPLY M+/-

K9
R2+ 21 22 R2-
23 24
S1+ 25 26 B 465
27 28
LOSS OF DC SUPPLY R2+/-

K10
I+ X5 8 21 22 X5 18 I-
23 24
S1+ X6 24 25 26 A 465
27 28
LOSS OF DC SUPPLY I+/-

465 33kV OC FAIL X6 25

+HA.12
SH:365.10
X6 16 X12 11
17 12

+HA.14
SH:868
X6 1
4

R1+ R1- R2+ R2- H+ H- I+ I- S1+
R1+ R1- R2+ R2- H+ H- I+ I- S1+
465

المخطط النهائي
AS BUILT

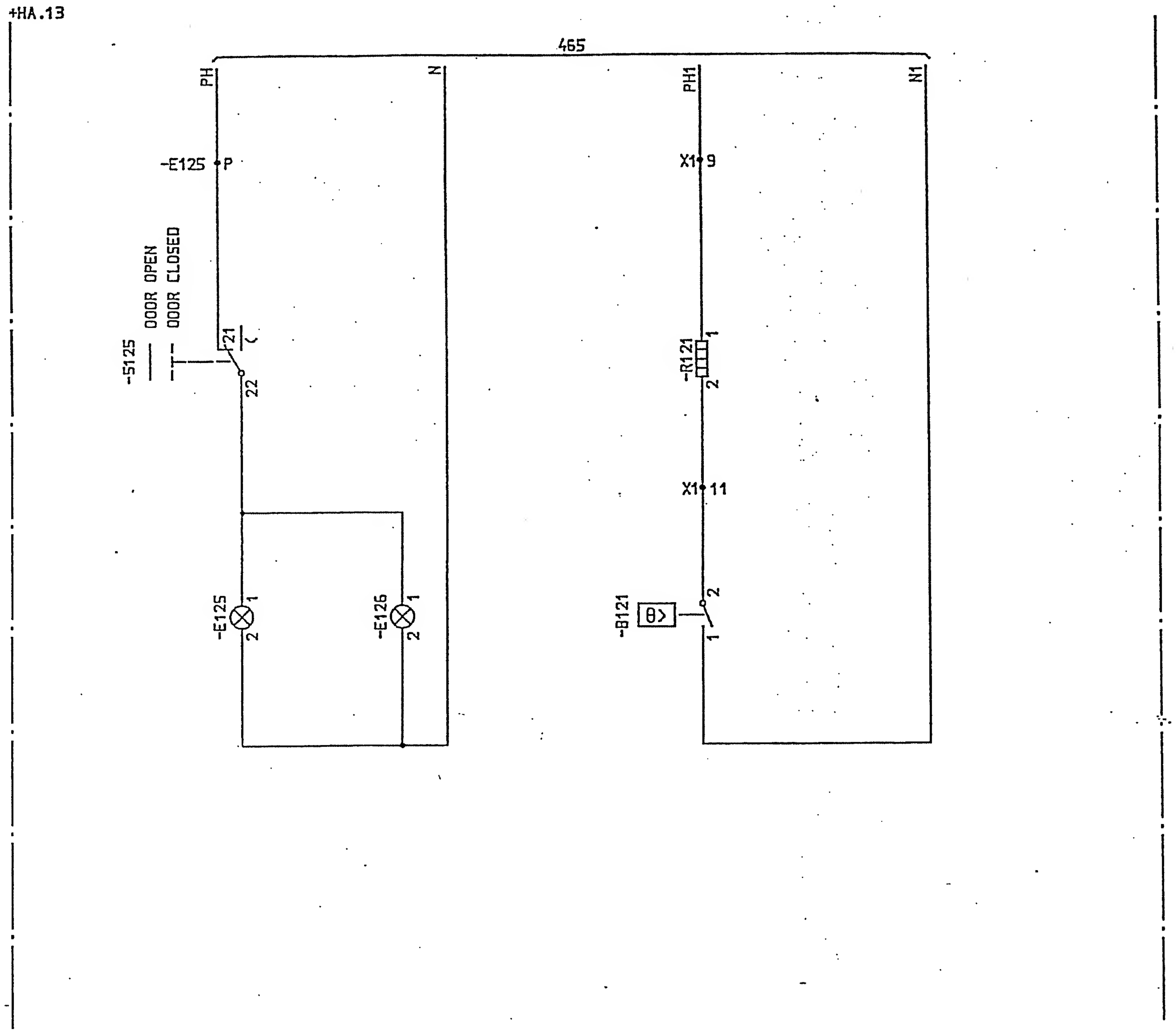
SYMBOL ID /D:XL824028-FBR:465.10/0 DATE 91-06-04 09.10

Design checked by: B NILSSON	=10 33kV INCOMING TRANSFORMER BAY	CIRCUIT DIAGRAM 5/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	L 9743.1017	Flow Ind: 1	Sheet: 465.10
Drawing checked by: L SVENSSON	DC AUX. VOLTAGE SUPPLY	ABB HV SWITCHGEAR	XL 824 028-FBR	Flow Ind: 1	Cont: 466
Drawn by: SK		Ins by Dept: TDCF Year Week: 90 36		Lang:	

1 AS BUILT LS 91 21 — Flow Ind / Revision / Appd / Year Week

ABB

+HA.13
(+5)
DC SYS-2
DC.9
XQB4.2
N101369.UFAB
SH:19
Q3+
Q3-
Q4+
Q4-
Q5+
Q5-
Q6+
Q6-
365
868
B
N
X1
X2
X3
X4
X5
K04
33KV AC/DC SUPPLY FAIL
GT2-AAH
SH-151
SH:172
465.10
465.10,469, 470,472,478
468.10
=10 R1+
=10 R1-
R1+
R1-
465.10,468,469, 471,472
465.10,468, 469,476
TRIP CIRCUIT No1
-Q1
-Q2
-Q3
-Q4
-Q5
-Q6
PH
N
PH1
N1
466
H+
H-
465.10,469 472,473,474
465.10,469 472,474
LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
=10 R2+
R2+
R2-
468.20
465.10,470 478
TRIP CIRCUIT NO2
465.10,471 469,470,472,474
465.10,471
INDICATION
MODIFIED
© MODIFICATION DONE UNDER CONTRACT 516/20/3
SYMBOL ID /0:XL824028-FBR:465/0
DATE 91-06-04 09.10
=10
33kV INCOMING TRANSFORMER BAY
DC AUX. VOLTAGE SUPPLY
AS BUILT
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF
L 9743.1017
XL 824 028-FBR
465
465.10



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:466/0 DATE 91-06-04 09.10

1	AS BUILT	LS	91 21
Rev Ind	Revision	Appd	Year Week

=10
33kV INCOMING TRANSFORMER BAY
HEATER AND LIGHT

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Lang | Sheet: 466
Rev ind: 1 | Cont: 468

SWG/TC

+RP.7 SH.880

B53.X119

=10 TRIP 7+ 3
=10 TRIP 7+ 12
=10 TRIP 7+ 4
=10 TRIP 7+ 13

=10 R1+
=10 TRIP 1+
=10 TRIP 1
=10 TRIP 1

+R04

X5 5 68 69 6

SH: 226, 276
DWG:S10114-ASAAH
WIND TEMP ST 2 TRIP
DIFF, HV E/F TRIP
51N TRIP , 86BB
LOAD SHEDDING

(405)
132KV

=10 TRIP 1
=10 R1+
=10 TRIP 1+

+HA.13

X3 31 5 6 6
=10 R1+
469

TRIP COIL SUPPLY

29 30
469

TRIP SUPER-VISION

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31/1/02

=10-1075
33kV

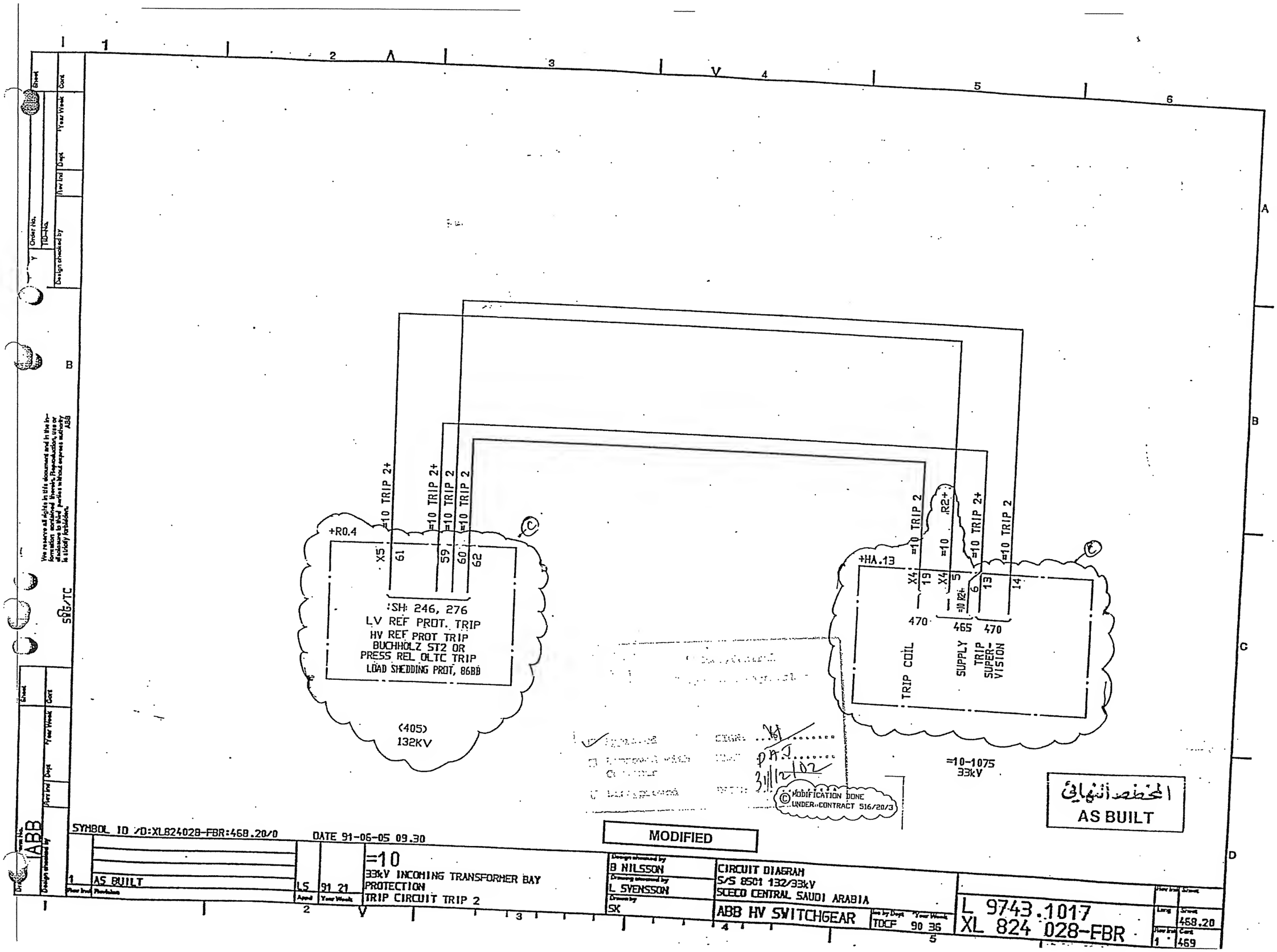
المخطط النهائي
AS BUILT

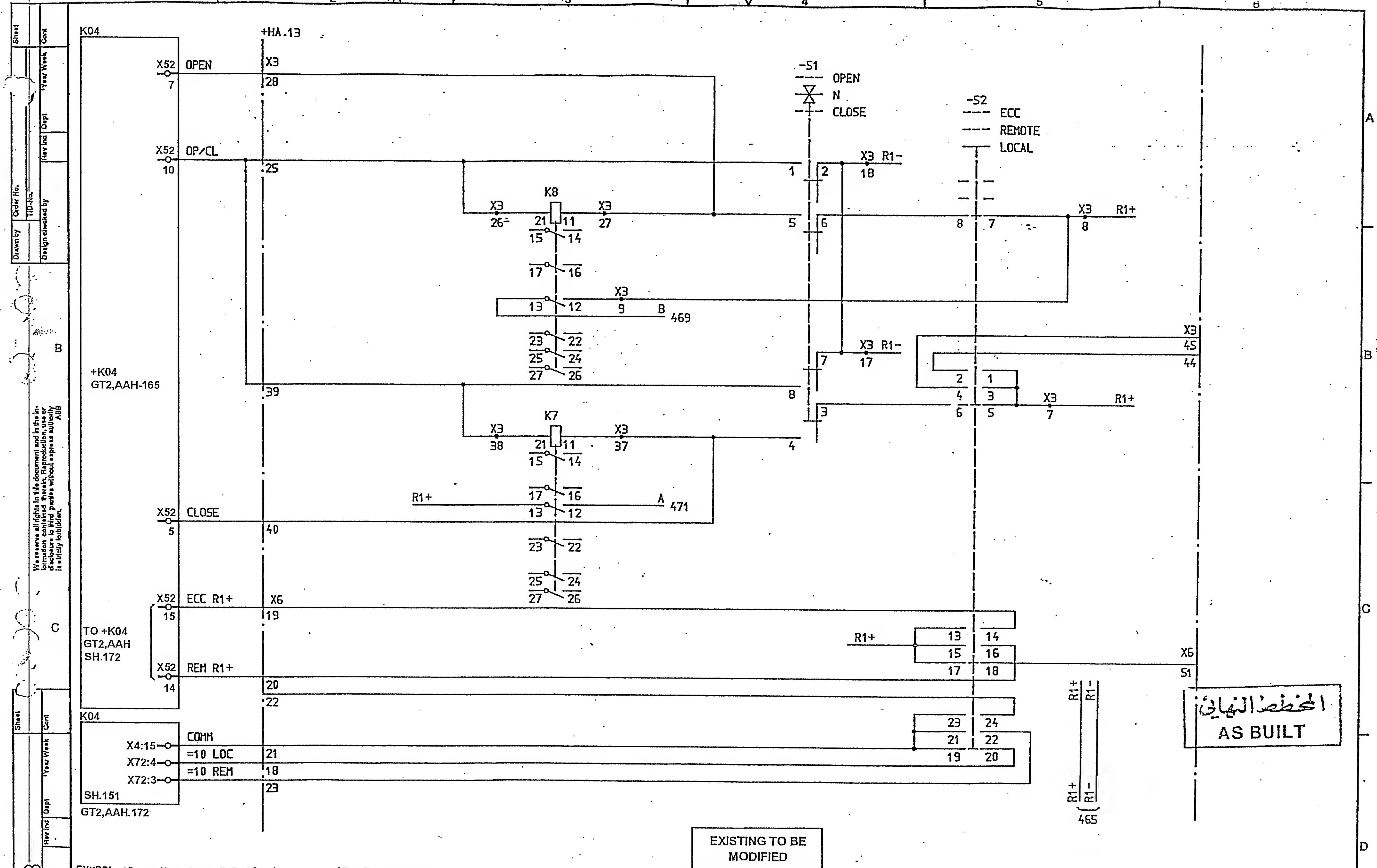
MODIFIED

SYMBOL ID /D:XL824028-FBR:468.10/0 DATE 91-06-05 09.30

1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY PROTECTION TRIP CIRCUIT TRIP 1	B.NILSSON L SVENSSON SK	CIRCUIT DIAGRAH S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	TDCF 90 36

L 9743.1017
XL 824 028-FBR
468.10
1 468.20


+R0.4
X5
61
59
60
62
=10 TRIP 2+
=10 TRIP 2
:SH: 246, 276
LV REF PROT. TRIP
HV REF PROT TRIP
BUCHHOLZ ST2 OR
PRESS REL OLTC TRIP
LOAD SHEDDING PROT, 86BB
(405)
132KV
+HA.13
X4
19
5
6
13
14
=10 R2+
470
465
470
TRIP COIL
SUPPLY
TRIP
SUPER-
VISION
=10-1075
33kV
MODIFICATION DONE
UNDER CONTRACT 516/20/3
31/12/02
MODIFIED
SYMBOL ID :D:XL824028-FBR:468.20/0
DATE 91-06-05 09.30
AS BUILT
LS
91 21
=10
33kV INCOMING TRANSFORMER BAY
PROTECTION
TRIP CIRCUIT TRIP 2
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
468.20
469
ABB
SRG/TC
المخطط النهائي
AS BUILT



SYMBOL ID /D:XL824028-FBR:468/0 92-07-02 18.55

2	SCECO SNAG	LS	92 26	=10
1	AS BUILT	LS	91 21	33kV INCOMING TRANSFORMER BAY
Rev Ind	Revision	Appd	Year Week	C.B SELECTOR SWITCHES

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2 — Sheet: 468 — Cont: 468.10

LCC.D4
X5
40
SH.77
DWG: O1D-SR-GT2
+HA.13
X2
23
X3
29
=10 TRIP1+
468.10
=10 TRIP1
30
K3
21
11
16
26
17
15
25
27
18
28
R1+
R1-
I+
468.10 =10 TRIP1
X3
31
468
B
K4
470
C
X3
10
42
+K04
X6
62
GT2,AAH
SH.151
33KV TRIP CIRCUIT FAULTY
X6
32
K9
12
11
S1+
14
13
16
15
18
17
TC1
FAULTY
SERVICE POS.
R1+
R1-
H+
H-
S1+
I+
ICF
465
470
H-
K11
21
22
15
16
17
25
26
27
28
S1+
23
24
C
472
15s
CB AUX.
I.R. FAULTY
Y1
A1
A2
X2
15
H-
(-Q0)
-1075
480
R
Y
B
=73
33kV
BUSBAR
XG1
2
Y3
C2
C1
S6
4
3
S3
32
S1
31
14
13
2
1
XB.F.1.102
SH.81
K0
B
A
R0
54
53
472
A
B
M+
X2
26
25
8
1
16
15
14
13
22
21
14
13
X3
48
R1-
23
19
Y9
21
22
C2
C1
44
43
17
X2
30
5
M+
M-
X2
14
3
K13
11
21
4
11
12
32
31
MO
42
41
H
54
53
MODIFICATION DONE
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MODIFIED
المخطط النهائي
AS BUILT
SYMBOL ID /D:XL824028-FBR:469/0
92-07-02 18.56
2.1 SCECO SNAG
1 AS BUILT
LS 92 26
LS 91 21
=10
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -1075
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824_028-FBR
2.1
470
469
ABB
Sheet
Cont
Your Week
Dept
Rev Ind
Order No.
TID-No.
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Form No.
Appd
Language
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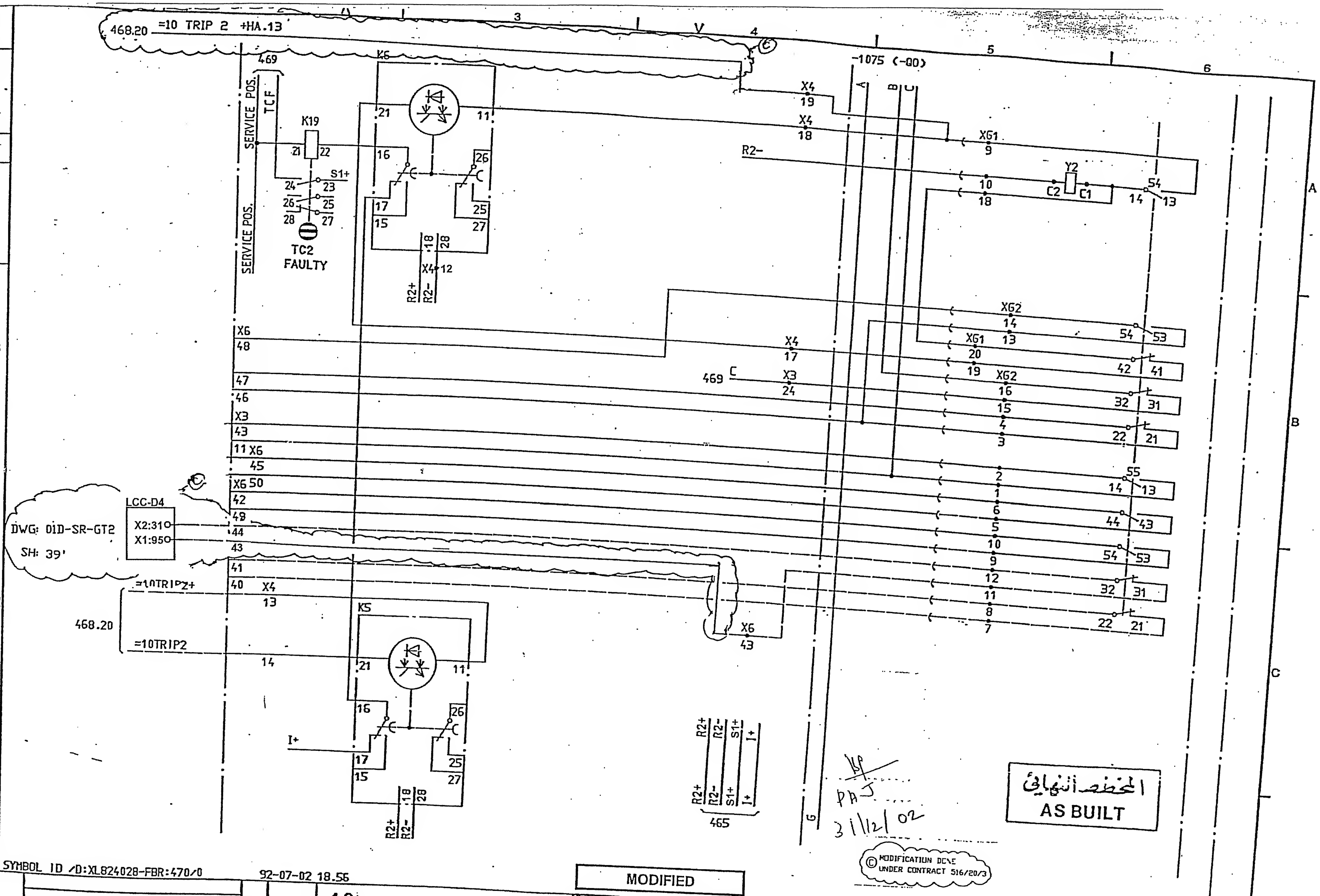


SYMBOL ID /D:XL824028-FBR:470/0 92-07-02 18.56

MODIFIED

Rev Ind	Revision	Appd	Year Week
2.1	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=10
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -1075

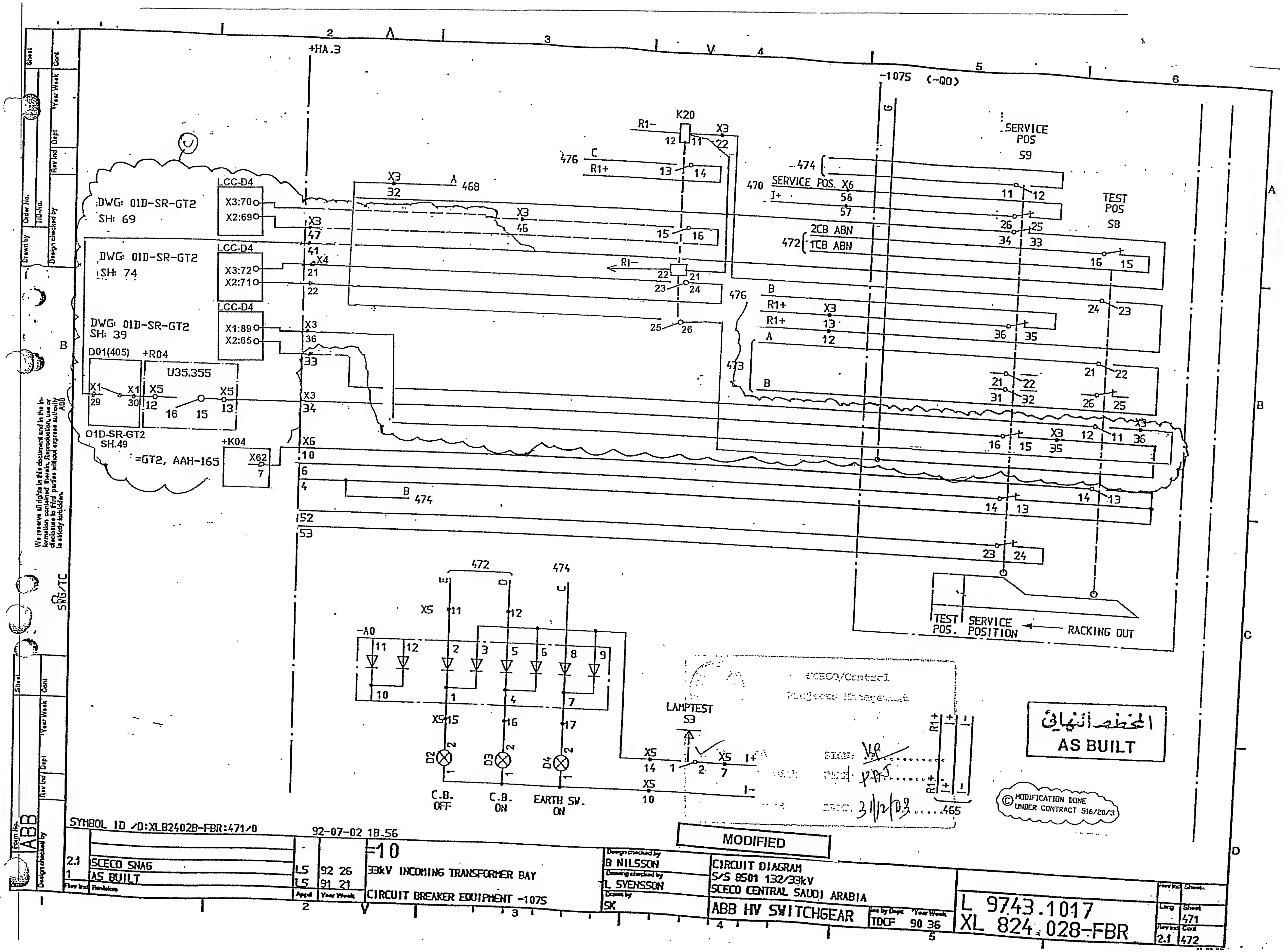
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR — TDCF — 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind 2.1 — Sheet 470 — Cont 471



+HA.3
-1075 (-Q0)
K20
R1-
X3
476
C
R1+
DWG: 01D-SR-GT2
SH: 69
LCC-D4
X3:70
X2:69
DWG: 01D-SR-GT2
SH: 74
X3:72
X2:71
DWG: 01D-SR-GT2
SH: 39
X1:89
X2:65
D01(405)
+R04
U35.355
O1D-SR-GT2
SH.49
+K04
=GT2, AAH-165
X62
468
474
SERVICE POS. X6
470
472
2CB ABN
1CB ABN
SERVICE POS
S9
TEST POS
S8
TEST POS.
SERVICE POSITION
RACKING OUT
-A0
X5
C.B. OFF
C.B. ON
EARTH SW. ON
LAMPTEST
S3
465
المخطط النهائي
AS BUILT
MODIFICATION DONE UNDER CONTRACT 516/20/3
MODIFIED
SYMBOL ID /D:XLB2402B-FBR:471/0
92-07-02 18.56
2.1 SCECO SNAG LS 92 26
1 AS BUILT LS 91 21
=10
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -1075
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABN HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824.028-FBR
471
2.1 472
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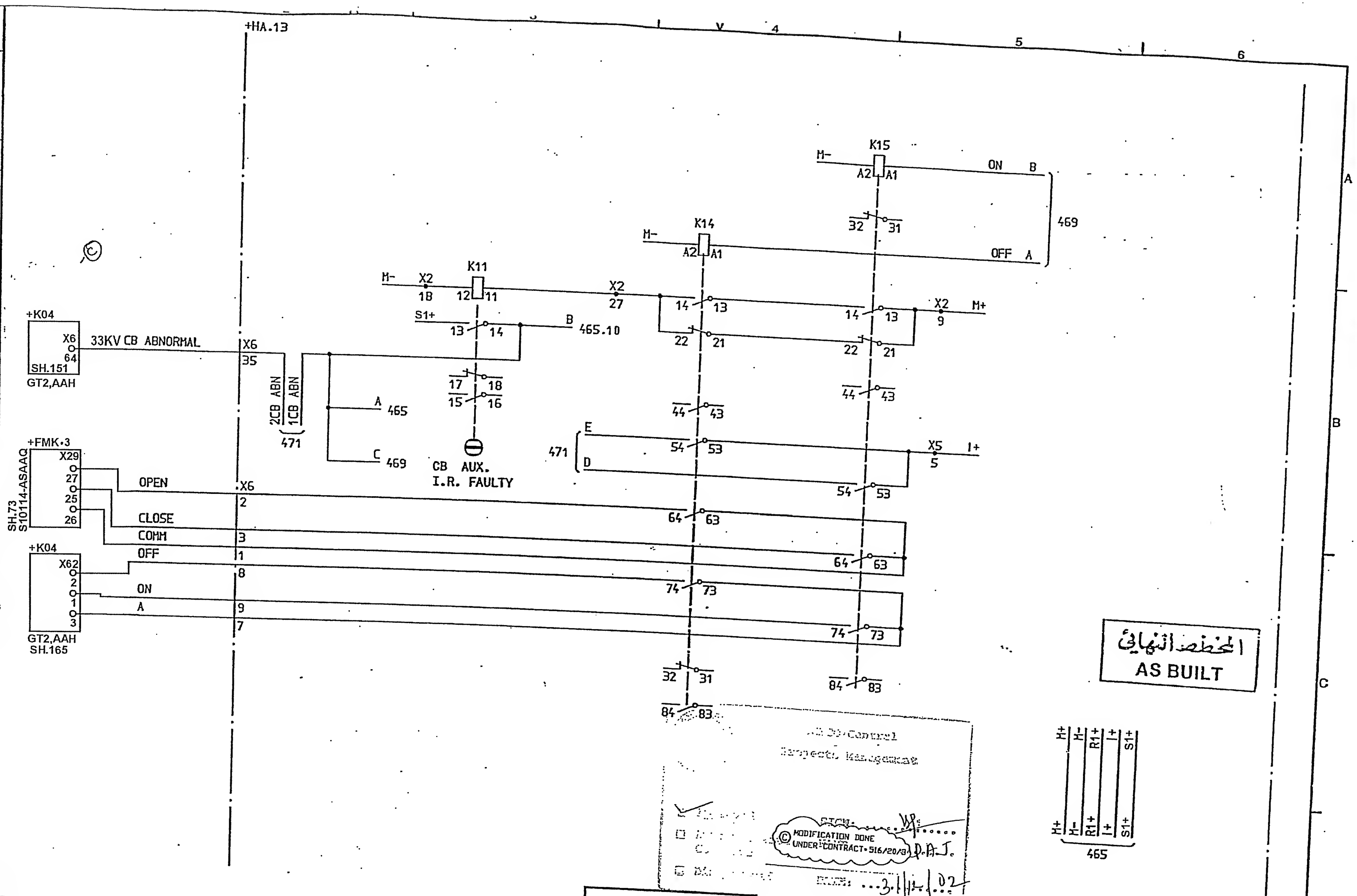
ABB



SYMBOL ID /D:XL824028-FBR:472/0   92-07-02 18.56

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=10

33kV INCOMING TRANSFORMER BAY

CIRCUIT BREAKER EQUIPMENT -1075

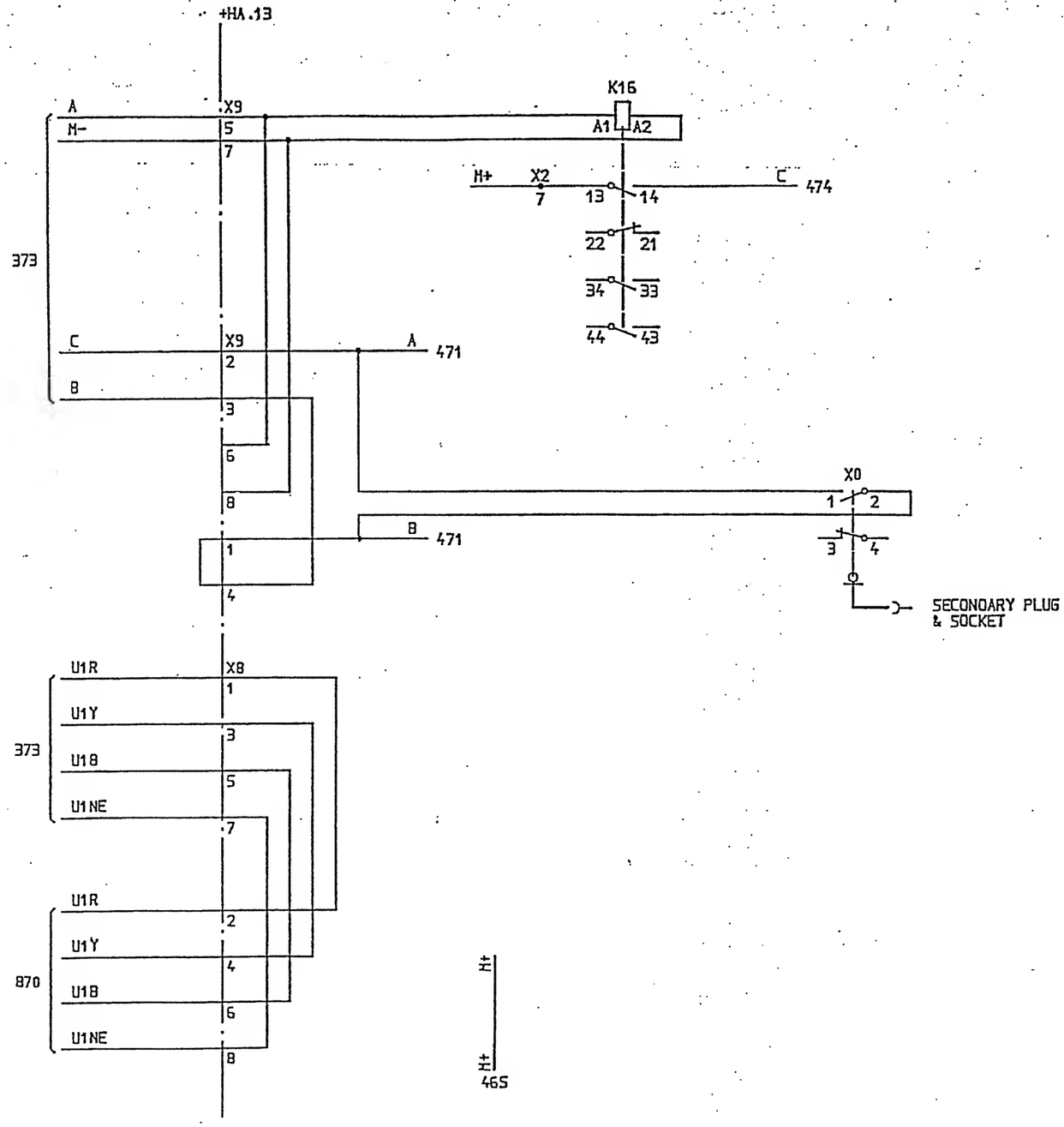
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR   Iss by Dept: TDCF   Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind: 2   Sheet: 472   Cont: 473

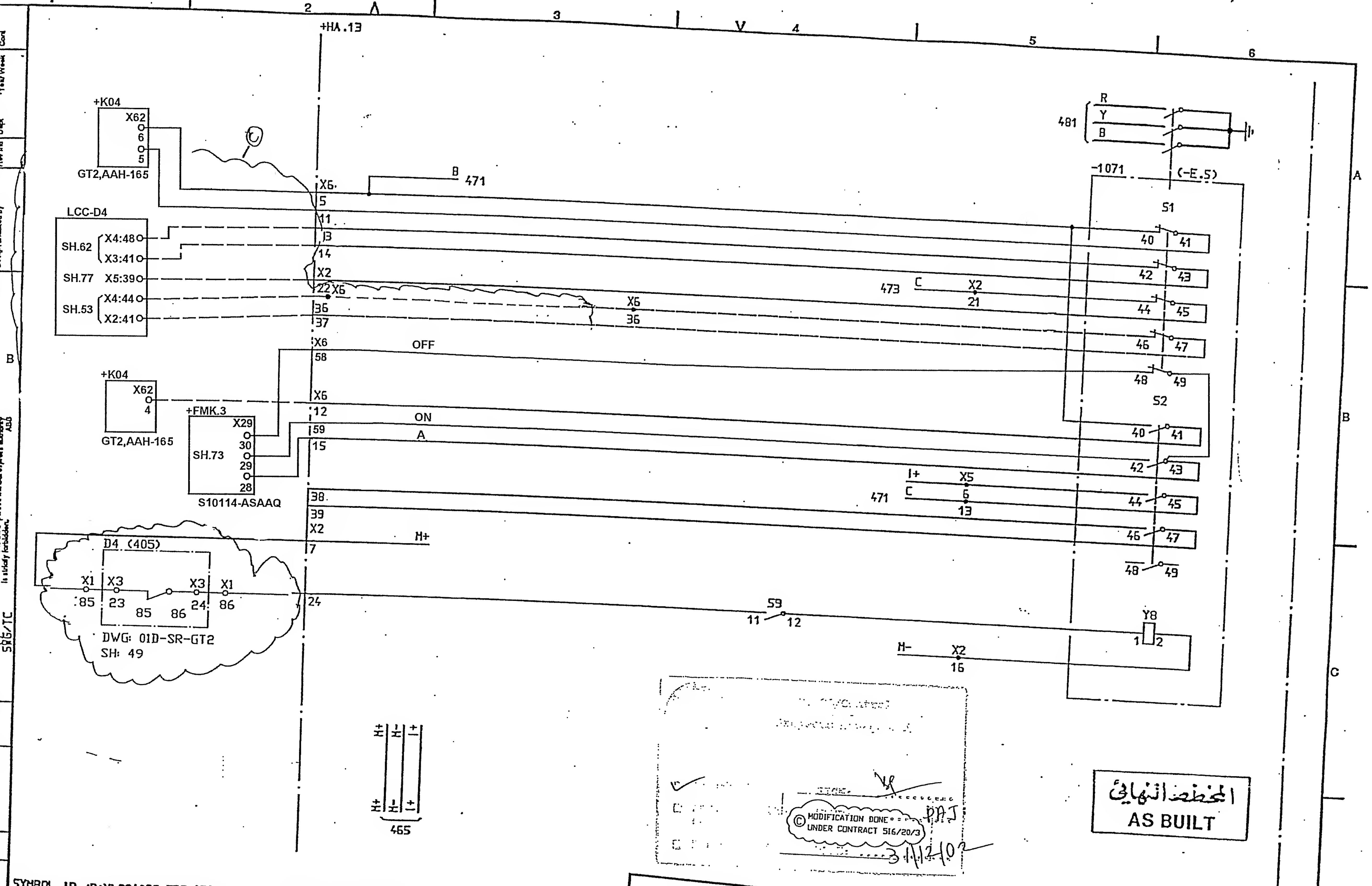


المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:473/0 DATE 91-06-05 09.31

1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY INTERLOCKING RELAY FOR C.B. TRUCK	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA; ABB HV SWITCHGEAR; Ins by Dept TDCF; Year Week 90 36	L 9743.1017 XL 824 028-FBR	Sheet 473; Cont 474

ABB



SYMBOL ID /D:XL824028-FBR:474/0 DATE 91-06-05 09.31

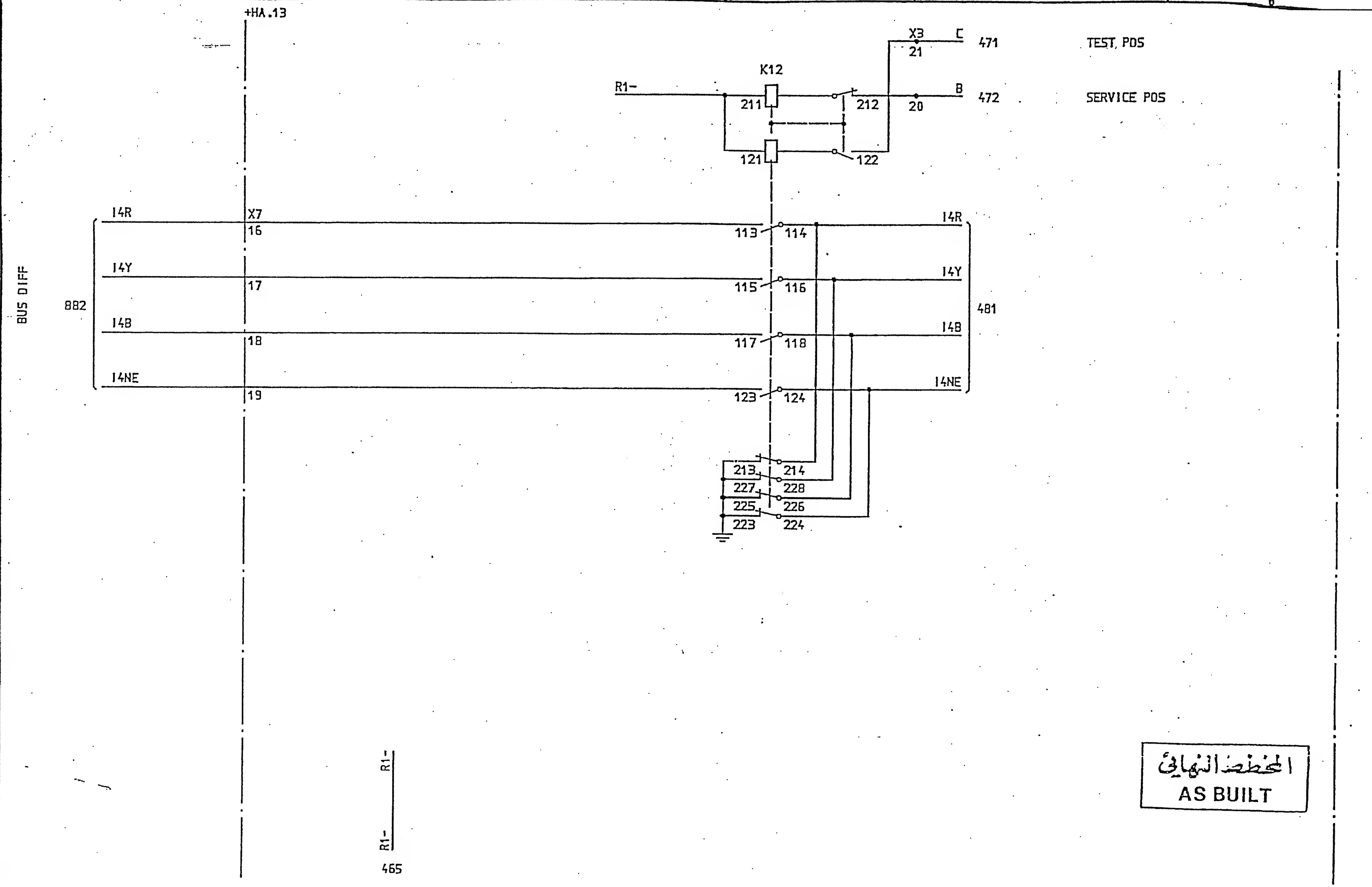
MODIFIED

1 AS BUILT	LS 91 21	=10 33kV INCOMING TRANSFORMER BAY EARTH SWITCH EQUIPMENT -1071	B NILSSON L SVENSSON SK

CIRCUIT DIAGRAM
S/S 8S01 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TOCF 90 35

L 9743.1017
XL 824 028-FBR

Sheet 474
Cont 475
Rev 1



SYMBOL ID /D:XL824028-FBR:476/0 DATE 91-06-05 09.31

1	AS BUILT	LS	91 21
Rev Ind	Revision	Appd	Year Week

=10
33kV INCOMING TRANSFORMER BAY
C.T. SHORTING RELAY

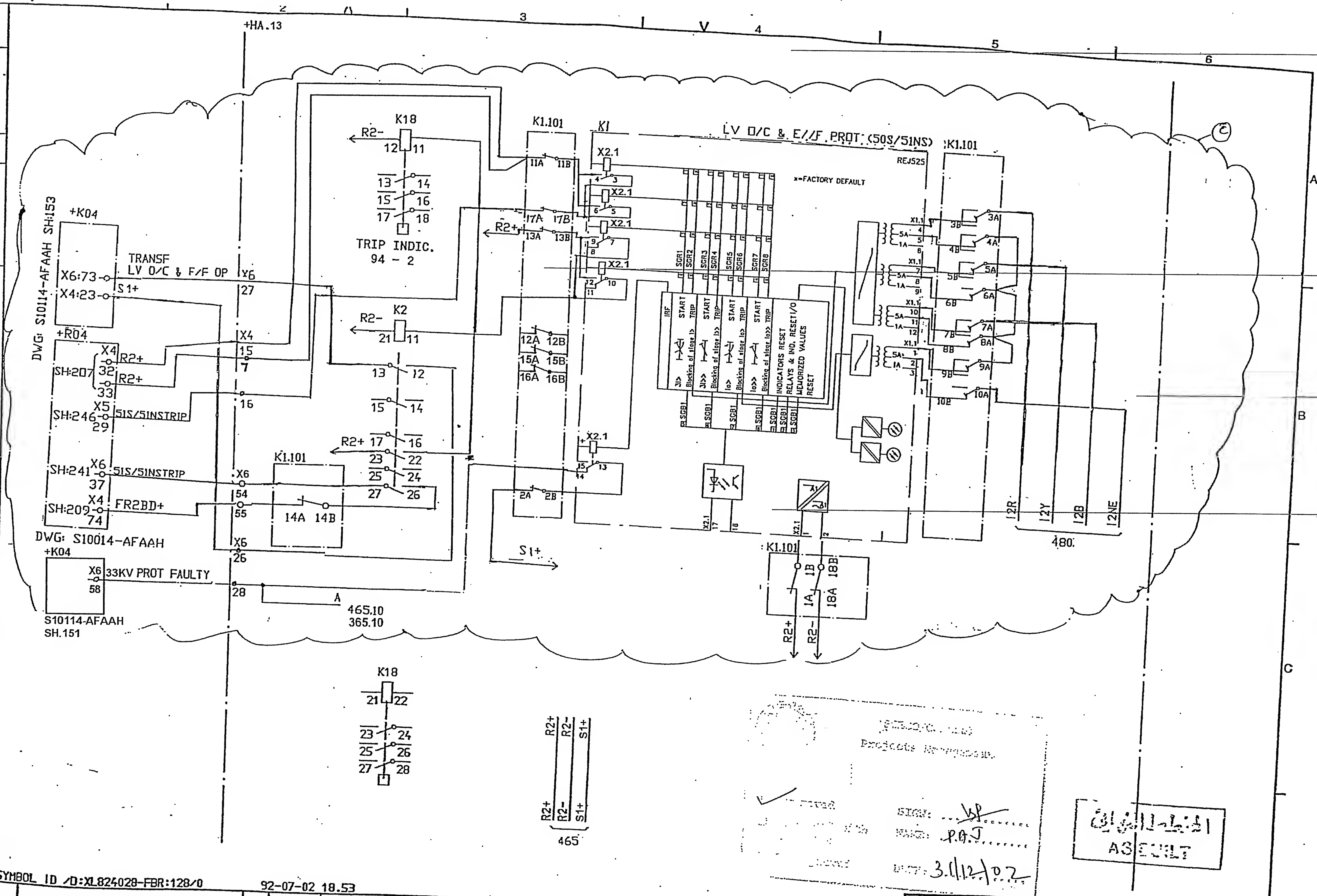
Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 476
Cont: 478
Rev Ind: 1



SYMBOL ID /D:XL824028-FBR:128/0

92-07-02 18.53

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=10

33kV INCOMING TRANSFORMER BAY

OVERCURRENT PROT 33kV

Design checked by: B NILSSON

Drawing checked by: L SVENSSON

Drawn by: SK

CIRCUIT DIAGRAM

S/S 8501 132/33kV

SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Iss by Dept: TDCF · Year Week: 90 36

L 9743.1017

XL 824 028-FBR

Lang · Sheet: 478

Rev Ind: 2 · Cont: 480

+HA.13

+K04

X1
11 I1R
13 I1Y
15 I1B
17 I1NE

S10114-AFAAH
SH.221

TERMINAL 1E
TO BE OPEN

X11
10
11 I1R
12
13 I1Y
14
15 I1B
16
17
18
19
1E

469

-T30.R P1
-T30.Y P1
-T30.B P1

151
152

2000/1A

X21
20
21 I2R
22
23 I2Y
24
25 I2B
26 I2NE
27
28
29
2E

478

251
252

2000/5A

MODIFIED

SYMBOL ID /D:XL824028-FBR:480/0 DATE 91-06-05 09.31

ABB	1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY CURRENT TRANSFORMER -T30	B NILSSON L SVENSSON SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR TDCF 90 36

L 9743:1017
XL 824 028-FBR
480
481

31/12/02

© MODIFICATION DONE UNDER CONTRACT 516/20/3

الخطة النهائية
AS BUILT

+HA.13

+K04

X1
27 13NE
25 13B
23 13Y
21 13R

GT2,AAH
SH.123

X7
12
15
14
13

-S4
R
Y
B
3 2
11 10
15 1B

X7
11
10 9
8 7
6 5

-01
A
1 8

X11
36
35
34
33
32
31
30

X11
40
41
42
43
44
45
46
47
48
49
4E

14R
14Y
14B
14NE
476

TERMINAL 4E
TO BE OPEN

-T30.R
-T30.Y
-T30.B

351
352
353

2000-1000/5A

451
452

2000/1A

P2

R
Y
B
474

TO 132kV SWG
=GT2
-FBB:229

31.12.92

MODIFIED

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:481/0 DATE 91-06-05 09.31

ABB

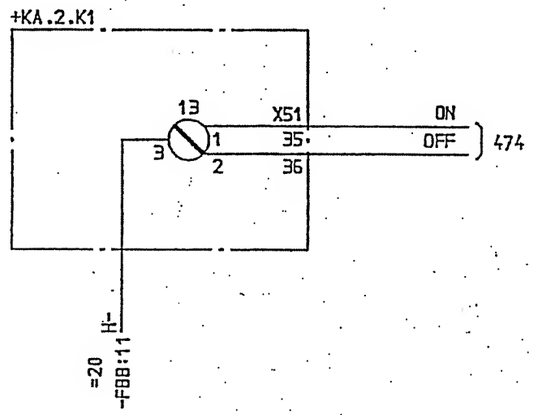
1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY CURRENT TRANSFORMER -T30	B NILSSON / L SVENSSON / SK

CIRCUIT DIAGRAH
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36

L 9743.1017
XL 824 028-FBR
Sheet 481
Sheet 485

SVG/TC

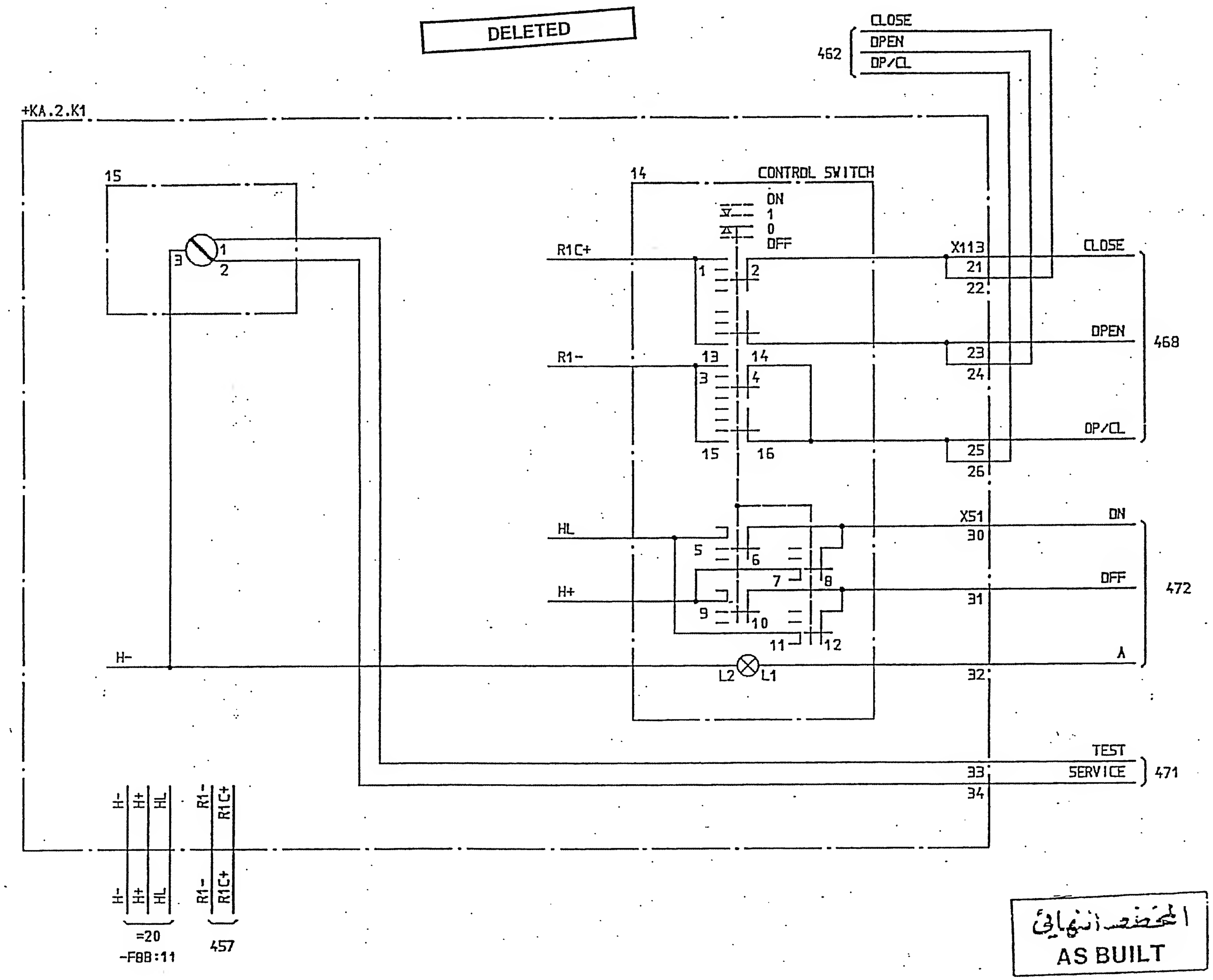
DELETED



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:485/0 DATE 91-06-05 09.31

1	AS BUILT	LS	91 21	=10 33kV INCOMING TRANSFORMER BAY EARTH SWITCH EQUIPMENT -1071 INDICATION	Design checked by B NILSSON; Drawing checked by S STRIOSHAN; Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR



المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:490/0 DATE 91-06-05 09.31

1	AS BUILT	LS	91 21
Rev Ind	Revision	Appd	Year Week

=10
33kV INCOMING TRANSFORMER BAY
CIRCUIT BREAKER EQUIPMENT -1075
CONTROL AND INDICATION

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: SK

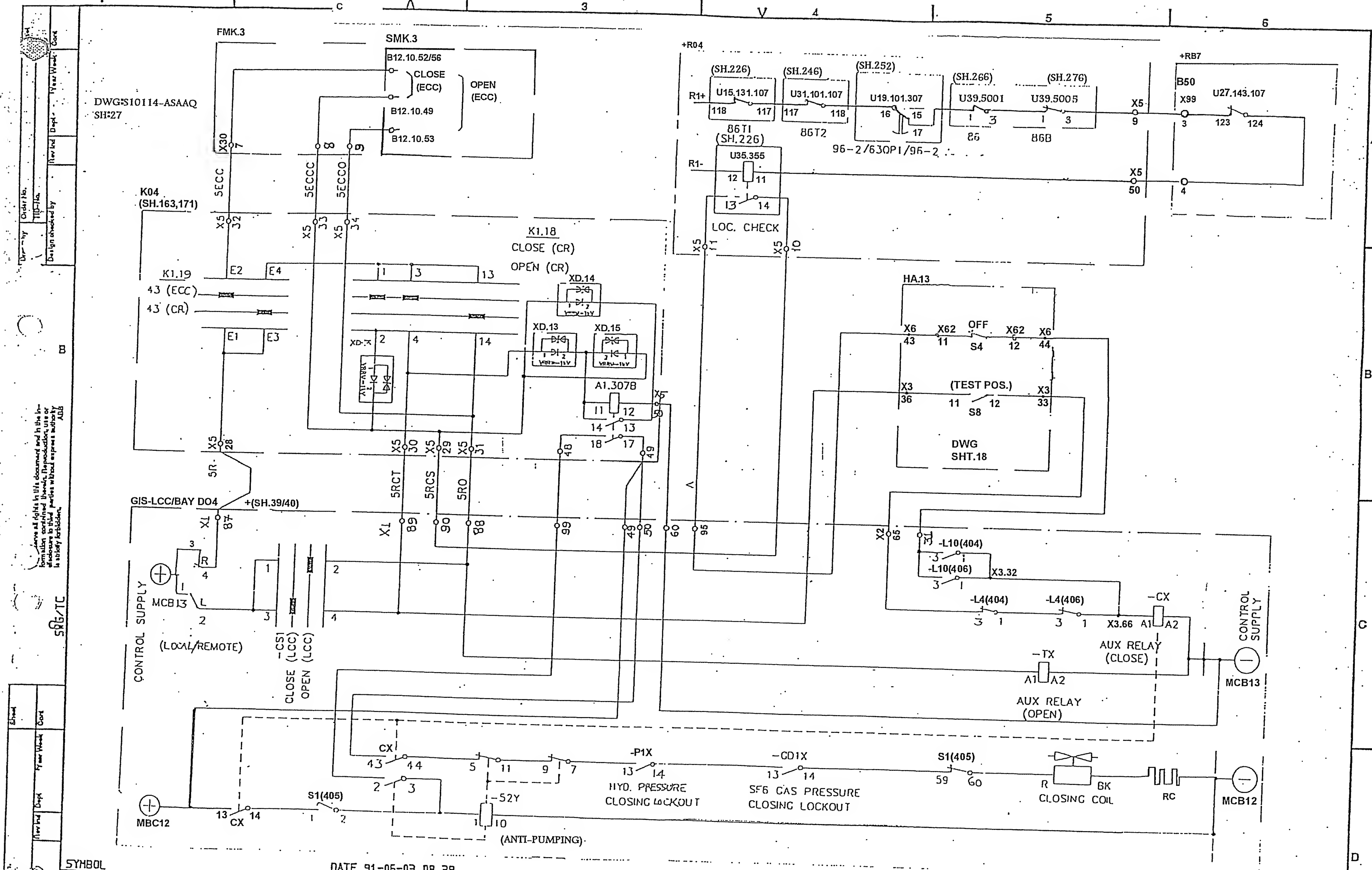
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR — Iss by Dept TCF — Year Week 90 08

L 9743.1017
XL 824 028-FBR

Rev Ind 1 — Sheet 490 — Cont 491

SNG/TC



SYMBOL

DATE 91-06-03 08.39

1 AS-BUILT L5 91-21

=3

132/33kV GRID TRANSFORMER
132kV CB.405 CLOSING CIRCUIT =GT2

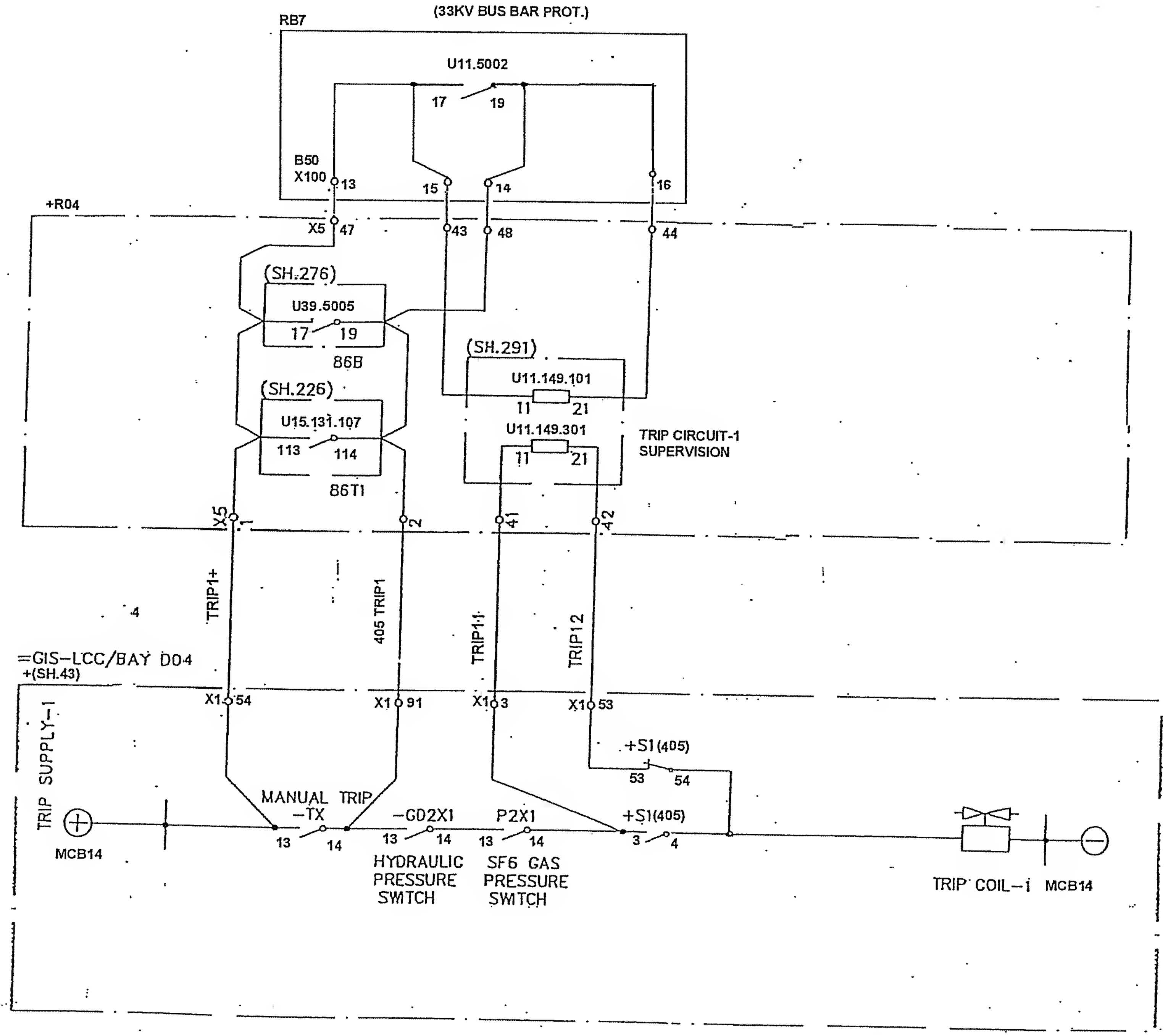
B NILSSON
S STRIDSMAN
SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR TCF 90 08

L 9743.1017
XL 824 028-FBR

491
492



Based on

Drawn 01 44 KARTHIK
Checked 01 44 KAMAL AL-MUHANNA
8501, 132/33/13.8KV
CRB, CONTRACT NO. 516/20/3

132/33KV GRID TRANSFORMER-2
BREAKER-405 TRIPPING COIL-1

=GT2

Resp dept AU

HV SWITCHGEAR

L9743-1017
XL 824 023-FBR

SHT 492
CONT 493

+R04

(SH:245)
U31.101.107
113 114
86T2

(SH:276)
U39.5005
10 12
86B

(SH:296)
U31.131.101
11 21

U31.131.301
11 21

TRIP CIRCUIT–2 SUPERVISION

X5 21 22 45 46

405 TRIP 2+ 405 TRIP 2 TRIP 21 TRIP 22

=GIS-LCC/BAY D04
+(SH:45)

X1 56 93 5 55

TRIP SUPPLY–2

+S1(405) 55 56

TRIP

-TX 43 44 MCB15

-GD2X2 13 14 HYDRAULIC PRESSURE SWITCH

-P2X2 13 14 SF6 GAS PRESSURE SWITCH

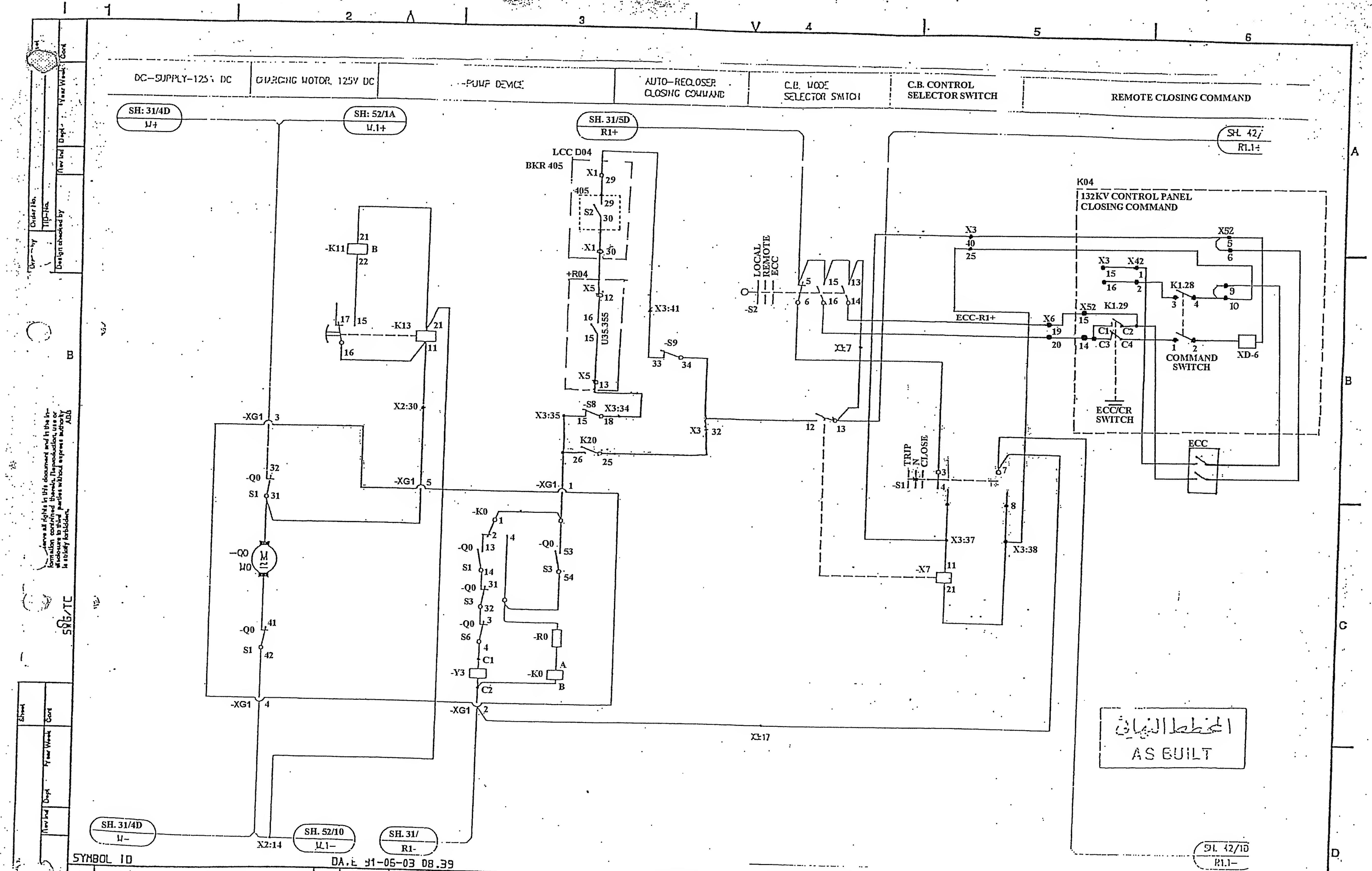
+S1(405) 5 6

TRIP COIL–2 MCB15

SYMBOL

DATE 91-06-03 08.39

1	AS-BUILT	LS	91-21	132/33kV GRID TRANSFORMER-2 BREAKER-405 TRIPPING COIL-2 =GT2	Design checked by B NILSSON Drawing checked by S STRIDSMAN Drawn by SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR



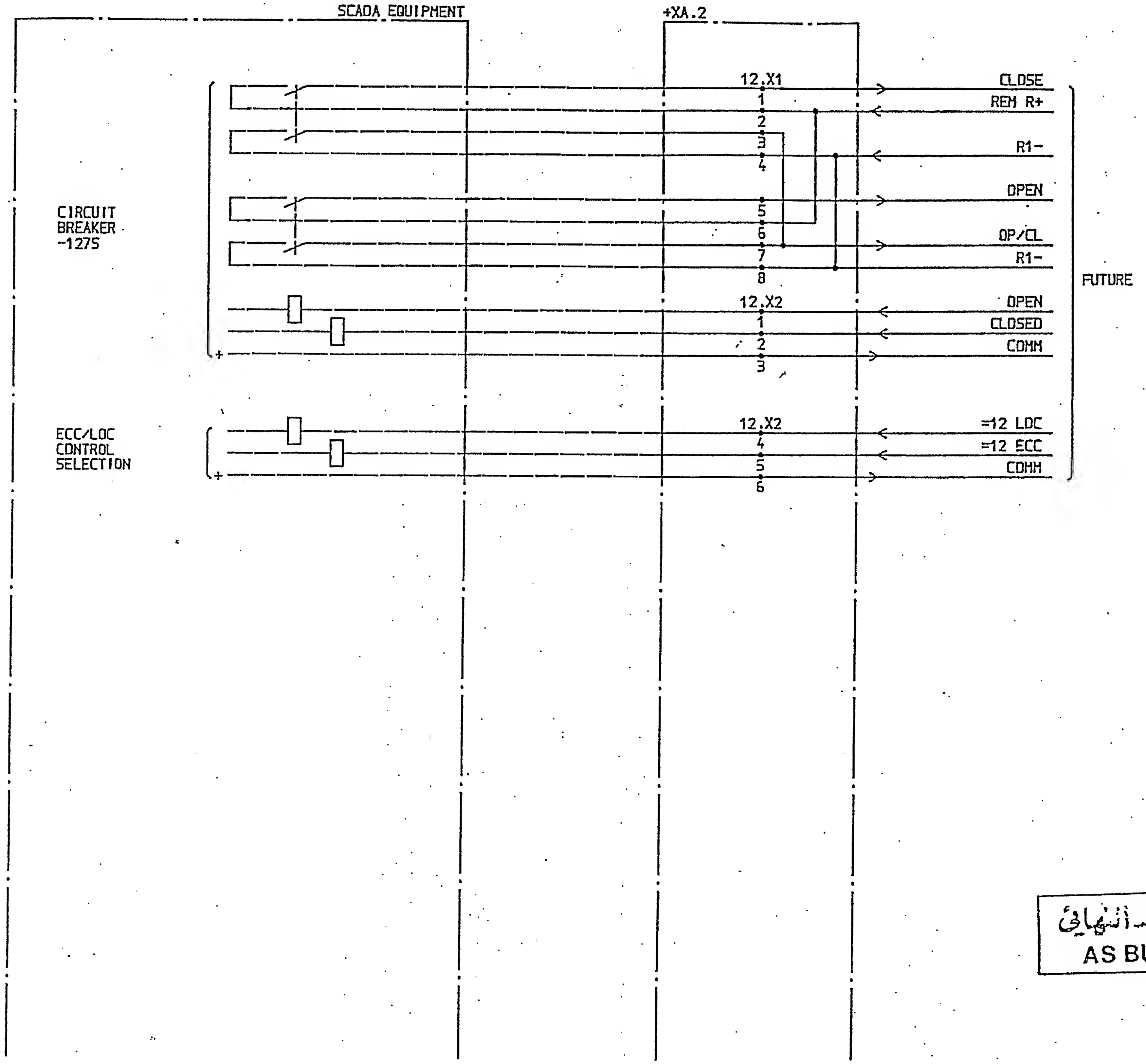
1 AS-BUILT LS 91-21

=3
132/33kV GRID TRANSFORMER- 2
BEAKER- 475
=GT2

Design checked by: B NILSSON
Drawing checked by: S STRIDSMAN
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TCF 90 08

L 9743.1017
XL 824 028-FBR
Sheet 494
Cont 495



المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-FBR:562/0 DATE 91-06-05 09.31

Rev Ind	Revision	Appd	Year Week				
1	AS BUILT	LS	91 21	=12 33kV FUTURE LINE SCADA INTERFACE EQUIPMENT	Design checked by: B NILSSON Drawing checked by: S STRIDSMAN Drawn by: IA	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR Iss by Dept: TCF Year Week: 90 10	L 9743.1017 XL 824 028-FBR Rev Ind: 1 Sheet: 562 Cont: 512

PKL
SNG/TC

SCADA EQUIPMENT

+XA.2

CIRCUIT BREAKER -1475

14.X1

1 CLOSE
2 REM R+
3 R1-
4
5 OPEN
6
7 OP/CL
8 R1-

14.X2

1 OPEN
2 CLOSED
3 COMM

FUTURE

ECC/LOC CONTROL SELECTION

14.X2

4 =14 LOC
5 =14 ECC
6 COMM

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:612/0 DATE 91-06-05 09.31

1	AS BUILT	LS	91 21	=14 33kV FUTURE LINE	
Rev Ind	Revision	Appd	Year Week	SCADA INTERFACE EQUIPMENT	

Design checked by B NILSSON	CIRCUIT DIAGRAM	L 9743.1017
Drawing checked by S STRIDSMAN	S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	XL 824 028-FBR
Drawn by IA	ABB HV SWITCHGEAR	Des by Dept TCF, Year Week 90 10

Rev Ind 1 | Sheet 612 | Cont 651

ABB

ITEM	DESIGNATION	SHEET
+RB.7	HEATING AND LIGHTING	654
	VOLTAGE DISTRIBUTION	655
+HA.5	AUX. VOLTAGE SUPPLY	668
	HEATING AND LIGHTING	669
-T36	VOLTAGE TRANSFORMER	670
+RB.7	BUSBAR PROTECTION	680
	OPEN CT-SUPERVISION	683

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:651/0 DATE 91-06-05 09.31

1 AS BUILT LS 91 21

=71
33kV BUSBAR ZONE1
LIST OF CONTENTS

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

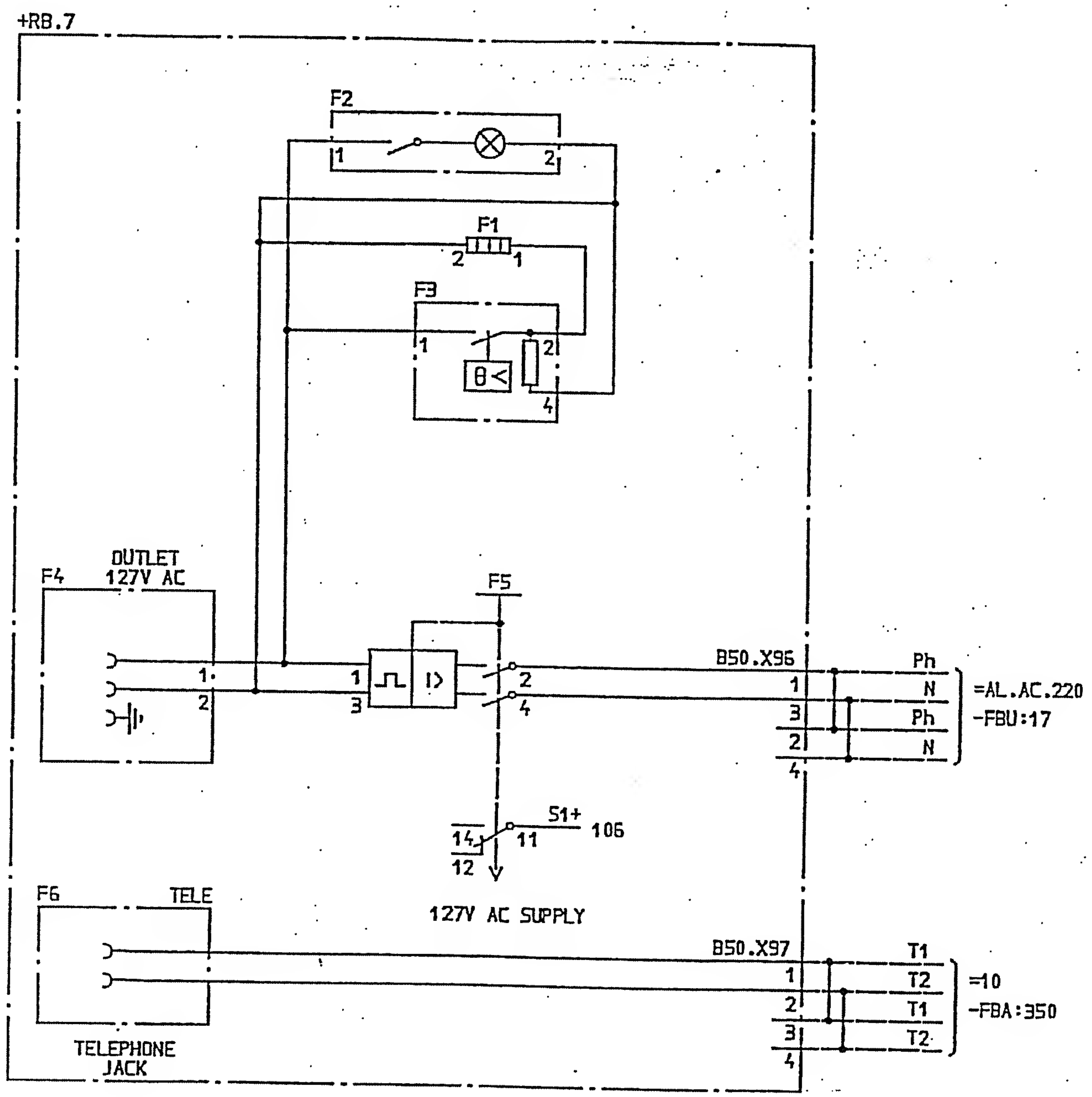
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR TDCF 90 36

L 9743.1017
XL 824 028-FBR

Sheet 651
Cont 654
Rev 1

ABB

SRG/TC



المخطط النهائي
AS BUILT

SYMBOL ID /0:XL824028-F8R:654/0 DATE 91-06-05 09.31

Rev Ind	Revision	Appd	Year Week		Design checked by		
1	AS BUILT	LS	91 21	=71 33kV BUSBAR ZONE 1 AC AND TELEPHONEJACKET CIRCUITS VOLTAGE DISTRIBUTION	B NILSSON Drawing checked by: J SKOVGAARD Drawn by: GH	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR Iss by Dept: TCF Year Week: 90 08	L 9743.1017 XL 824 028-FBR Sheet: 654 Rev Ind: 1 Cont: 655

+RB.7

U35.101

DCDB

XQB4:3

DC-9
SH.19
N101369-UFAB

B51.X91

PB1+

PB1-

656

ON

OFF

S1+

131A

PROTECTION
SUPPLY FAULTY
LOSS OF PB1±

PB1+SUP

PB1-SUP

656

BB PROT
SUPP ZONE 1
PB±125V DC

K124A/B

X61

25

DWG: S10114-AFAAD
SH:157

33kV BB PROT FAULTY ZONE 1

OPEN CT CIRC ZONE1

6B3

B50.X41

21

131B

S1+

656

MODIFIED

© MODIFICATION DONE
UNDER CONTRACT 515/20/3

المخطط النهائي
AS BUILT

SYMBOL ID /D:XL824028-FBR:655/0 DATE 91-06-05 09.31

Rev Ind	Revision	Appd	Year Week	=71	
1	AS BUILT	LS	91 21	33kV BUSBAR ZONE1 PROTECTION SUPPLY VOLTAGE DISTRIBUTION	

Design checked by: B NILSSON
Drawing checked by: J.SKOVGAARD
Drawn by: PN

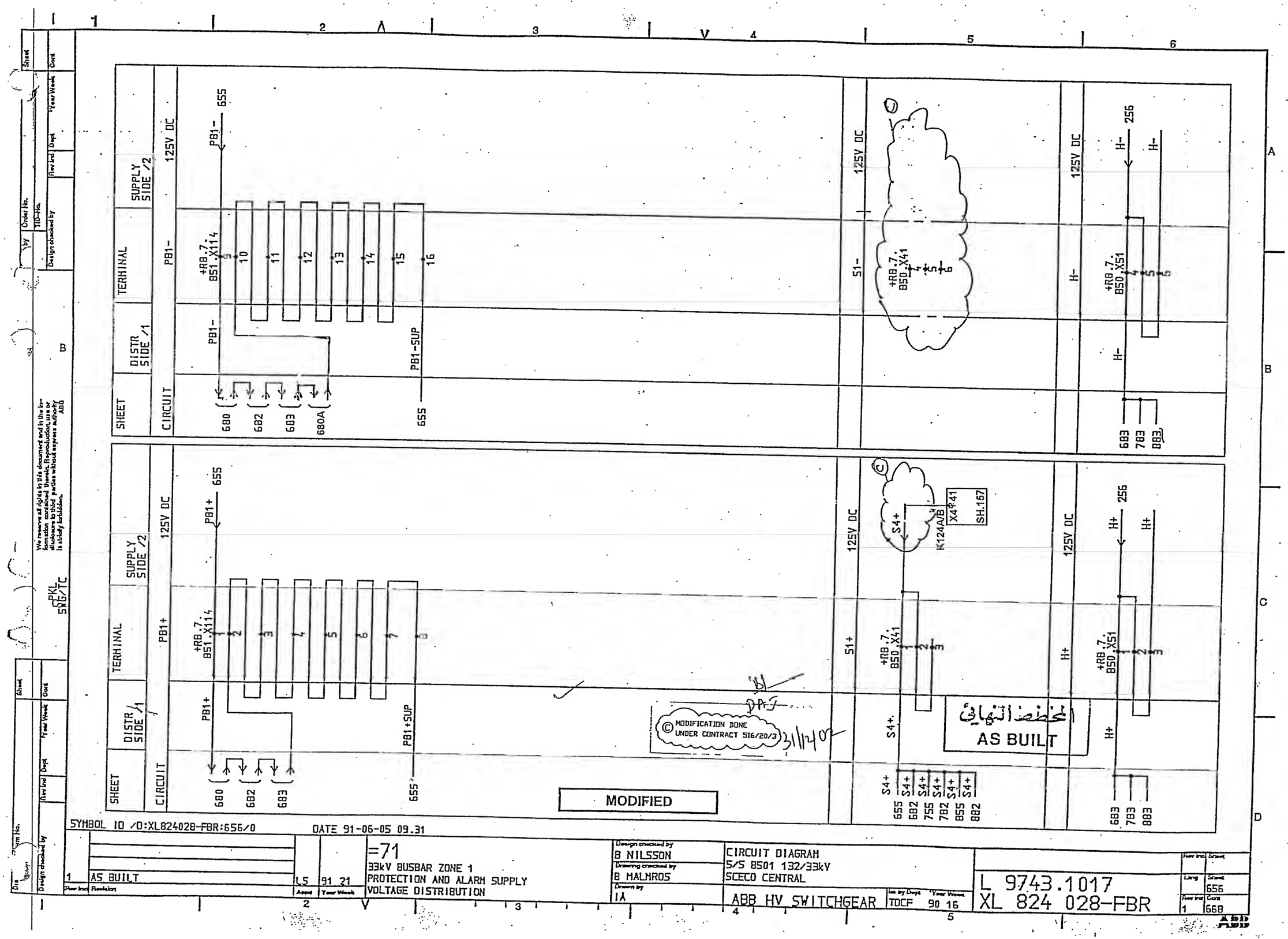
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

Issued by Dept: TDCF
Year Week: 90 08

L 9743.1017
XL 824 028-FBR

Rev Ind: 1
Sheet: 655
Cont: 656


SHEET
DISTR SIDE /1
TERMINAL
SUPPLY SIDE /2
CIRCUIT
PB1-
125V DC
PB1-655
+RB.7-B51.X114
680
682
683
680A
655
PB1-SUP
51-
+RB.7-B50.X41
H-
+RB.7-B50.X51
256
683
783
883
PB1+
PB1+655
PB1+SUP
51+
S4+
K124A/B
X4:41
SH.157
H+
655
682
755
782
855
882
MODIFIED
© MODIFICATION DONE UNDER CONTRACT 516/20/3
31/12/91
AS BUILT
SYMBOL ID /D:XL824028-FBR:656/0
DATE 91-06-05 09.31
=71
33kV BUSBAR ZONE 1
PROTECTION AND ALARM SUPPLY
VOLTAGE DISTRIBUTION
B NILSSON
B HALMROS
IA
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL
ABB HV SWITCHGEAR
TDCF 90 16
L 9743.1017
XL 824 028-FBR
1 AS BUILT
LS 91 21
656
668

+HA.5
(+5)
Q3+
115 Q3-
X2
1
3
X3
1
3
Q6+
Q6-
15
B
N
X5
1
3
X1
1
4
X2
2
4
X3
2
4
Q6+
Q6-
965
B
N
X5
2
4
X1
2
5
33kV AC FAIL
15
X6
4
33kV AC FAIL
965.10
S4+
15
S4+
965.10
33kV OC FAIL
965.10
33kV OC FAIL
3
-Q1
-Q2
-Q3
I>
1
3
2
4
11
12
K10
21
22
23
24
25
26
27
28
X2
8
11
12
13
K10
13
14
S4+
15
16
17
18
X1
7
8
PH
N
669
X1
9
10
PH1
N1
669
X2
5
13
H+
H-
975
975
LOSS OF DC SUPPLY M+/-
MODIFICATION DONE UNDER CONTRACT 516/20/3
DATE: 31.12.91
LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
MODIFIED
الخطط انتهائي
AS BUILT
SUPERV.
SYMBOL ID /D:XL824028-FBR:668/0
DATE 91-06-13 13.39
1 AS BUILT LS 91 21
=71
33kV BUSBAR ZONE1
DC AUX. VOLTAGE SUPPLY
B NILSSON
L SVENSSON
SK
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
Sheet 668
Cont. 669
Rev Ind 1
ABB

+HA.5

668

PH

N

PH1

N1

-S125 DOOR OPEN / DOOR CLOSED

22

21

-R121

1

2

X1 11

-E125

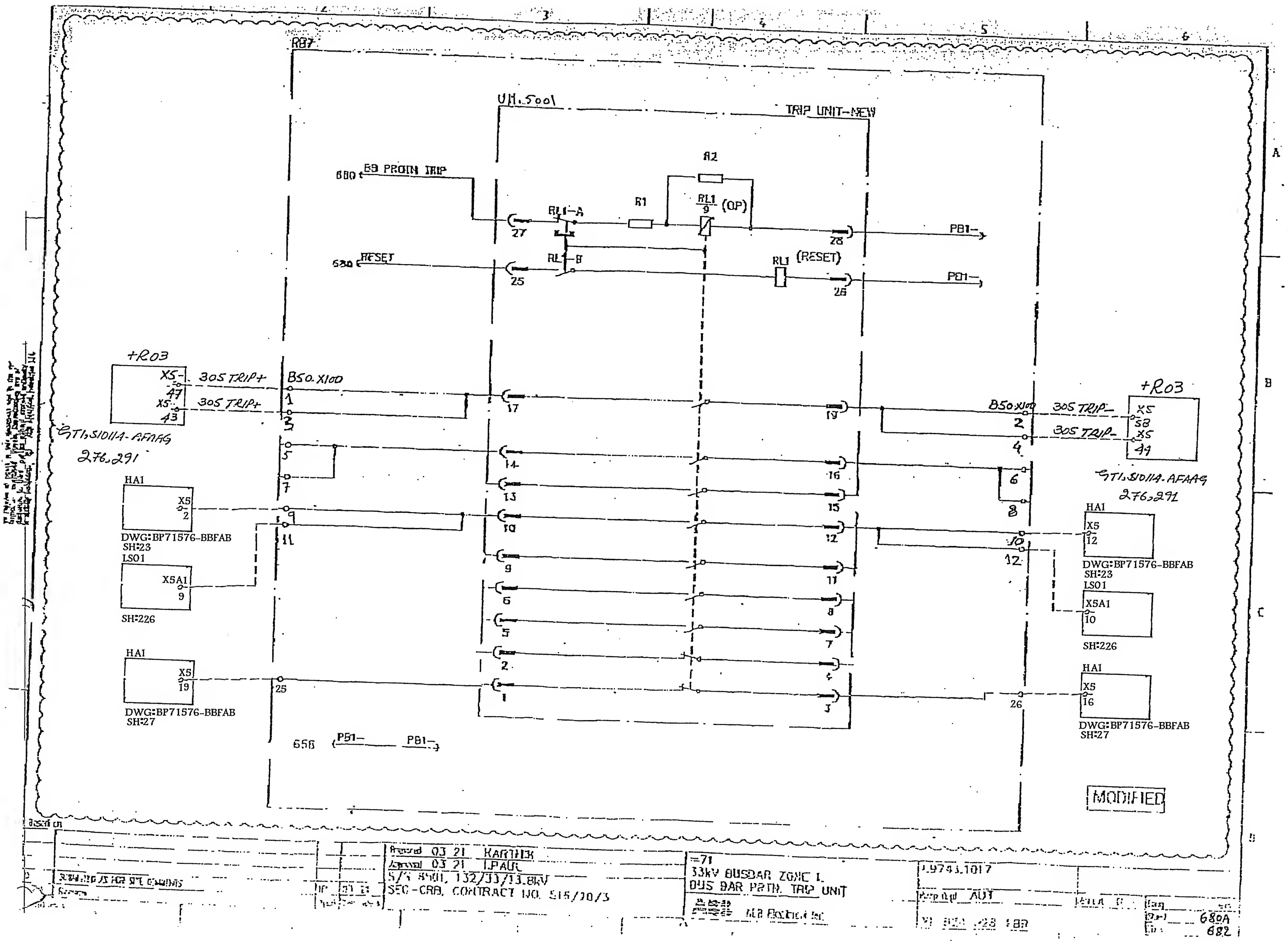
-E126

-B121

SYMBOL ID /D:XL824028-FBR:669/0 DATE 91-06-05 09.32

1	AS BUILT	LS	91 21	=71 33kV BUSBAR ZONE1 HEATER AND LIGHT	B NILSSON / L SVENSSON / SK	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA ABB HV SWITCHGEAR	L 9743.1017 XL 824 028-FBR

المخطط النهائي
AS BUILT



RB7
UH.5001
TRIP UNIT-NEW
R2
680 BB PROTN TRIP
R1
RL1 9 (OP)
RL1-A
27
28
PB1-
630 RESET
RL1-B
RL1 (RESET)
25
26
PB1-
+R03
X5 47
X5 43
305 TRIP+
305 TRIP+
B50.X100
1
3
5
7
9
11
25
GT1.S1011A-AFAAG
276.291
HA1
X5 2
DWG:BP71576-BBFAB
SH:23
LS01
X5A1 9
SH:226
HA1
X5 19
DWG:BP71576-BBFAB
SH:27
17
19
14
16
13
15
10
12
9
11
6
8
5
7
2
4
1
3
656 PB1- PB1-
+R03
B50.X100
305 TRIP-
305 TRIP-
X5 58
X5 44
2
4
6
8
10
12
26
GT1.S1011A-AFAAG
276.291
HA1
X5 12
DWG:BP71576-BBFAB
SH:23
LS01
X5A1 10
SH:226
HA1
X5 16
DWG:BP71576-BBFAB
SH:27
MODIFIED
Approved 03 21 KARTHIK
Approved 03 21 I.PAUL
S/S 8901, 132/33/13.8kV
SEC-CRB, CONTRACT NO. 515/20/3
=71
33kV BUSBAR ZONE 1
BUS BAR PRTN. TRIP UNIT
ABB Bechtel Inc
1.9743.1017
680A
682

+RB.7

U3.143

TRIP UNIT

680A

301

PB1+ 13 14 22 23

680A

6B2 88 PROT TRIP

307 PB1-

11 12 13 14 15 16 17 18 BB-PROT ZONE-1 -L-O

101

107

122 121 212 211

11 21 12 22 13 23 14 24 PB1-

1234567890 BN101841-BFAAD DWG:S10114-ASAAQ SH:27

705 +50V B51.X119

1 2 3 4 5 6 7 8 9

113 114 115 116 213 214 227 228 225 226 223 224

B51.X119 TRIP 13,8kV CB 717

10 11 12 13 14 15 16 17 18

DWG: BN101841 -BFAAD SH:23

+HA2 LS01 X5 2 X5A1 1

=3. TRIP1+

=3, FBR 118.10

=3 TRIP1+

=1 TRIP+

18.10 =1 TRIP+

965 =AB TRIP+

780 =AB TRIP+

=3 TRIP1

=3 TRIP1+

=3, FBR 118.10

+R03 X5 69

=1 TRIP

=1 TRIP 18.10

=AB TRIP 969

=AB TRIP 780

DWG: BN101841 -BFAAD SH:27

+HA2 X5 34

+R03 X5 50

S10114-AFAAG SH.226

B50.X114:21 B50.X99:1 17 123 118 124 B50.X114:22 B50.X99:2

+HA2 X5 16

+R03 X5 9

S10114-AFAAG SH.226

PB1+ PB1- PB1+ PB1-

656

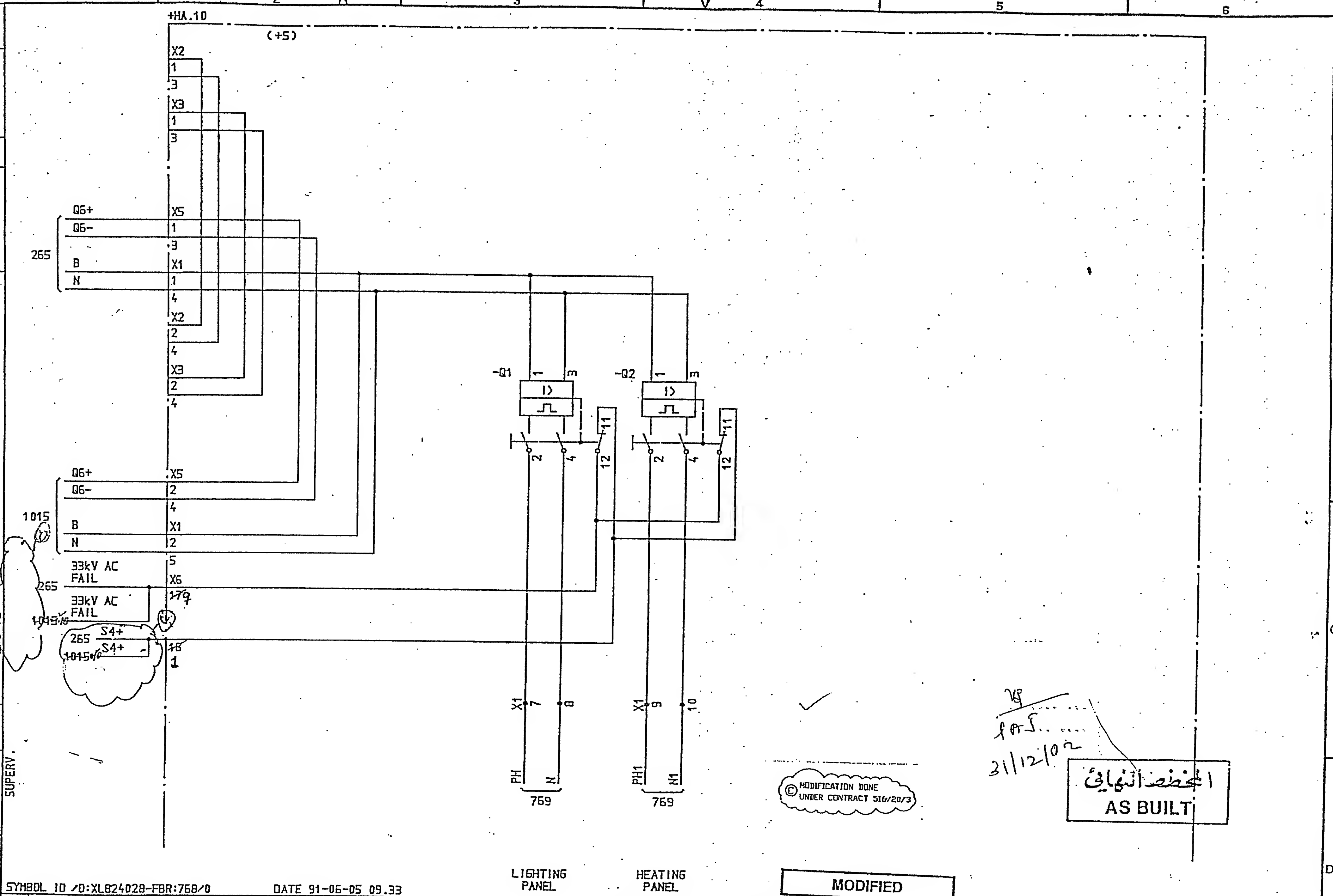
© MODIFICATION DONE UNDER CONTRACT 516/20/3

المخطط النهائي AS BUILT

31/12 MODIFIED

SYMBOL ID /D:XL824028-FBR:680/0 DATE 91-06-05 09.32

1	AS BUILT	LS	91 21	=71 33kV BUSBAR ZONE 1 BUSBAR PROTECTION TRIP UNIT	B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL	L 9743.1017 XL 824 028-FBR	
					B MALMROS			
					IA	ABB HV SWITCHGEAR TDCF 90 16		680



SYMBOL ID /D:XL824028-FBR:768/0 DATE 91-06-05 09.33

1 AS BUILT	LS	91 21
Rev Ind Revision	Appd	Year Week

=72
33kV BUSBAR ZONE2
DC AUX. VOLTAGE SUPPLY

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR | TOCF | 90 36

L 9743.1017
XL 824 028-FBR

Sheet 768
Cont 769
Rev Ind 1

ABB

+HA.10

=72 8USBAR

-T36

SCADA 762: U1R, U1Y, U1B

=2 82: U2R, U2Y, U2B, U2NE

S5 83: P+, P+ SUP, VT MCB TRIPPED

DISTANCE PROT

LS.02

DWG: S10114-AFAAD SH:420

KTA.03

DWG: S10114-AFAAU-SH: 309

Q8, Q9, Q12, Q13

S4+

11-2, 12-2

XG1

R, Y, B

1a, 1n, 2a, 2n, A, N

33/√3 / 0,11/√3 / 0,11/√3 kV

UR, UY, UB, UNE, URYB

771

© MODIFICATION DONE UNDER CONTRACT 516/20/3

المخطط النهائي
AS BUILT

MODIFIED

* To be Installed by Contractor

SYMBOL ID /D:XL824028-FBR:770/0 DATE 91-06-05 09.33

1 AS BUILT — LS 91 21

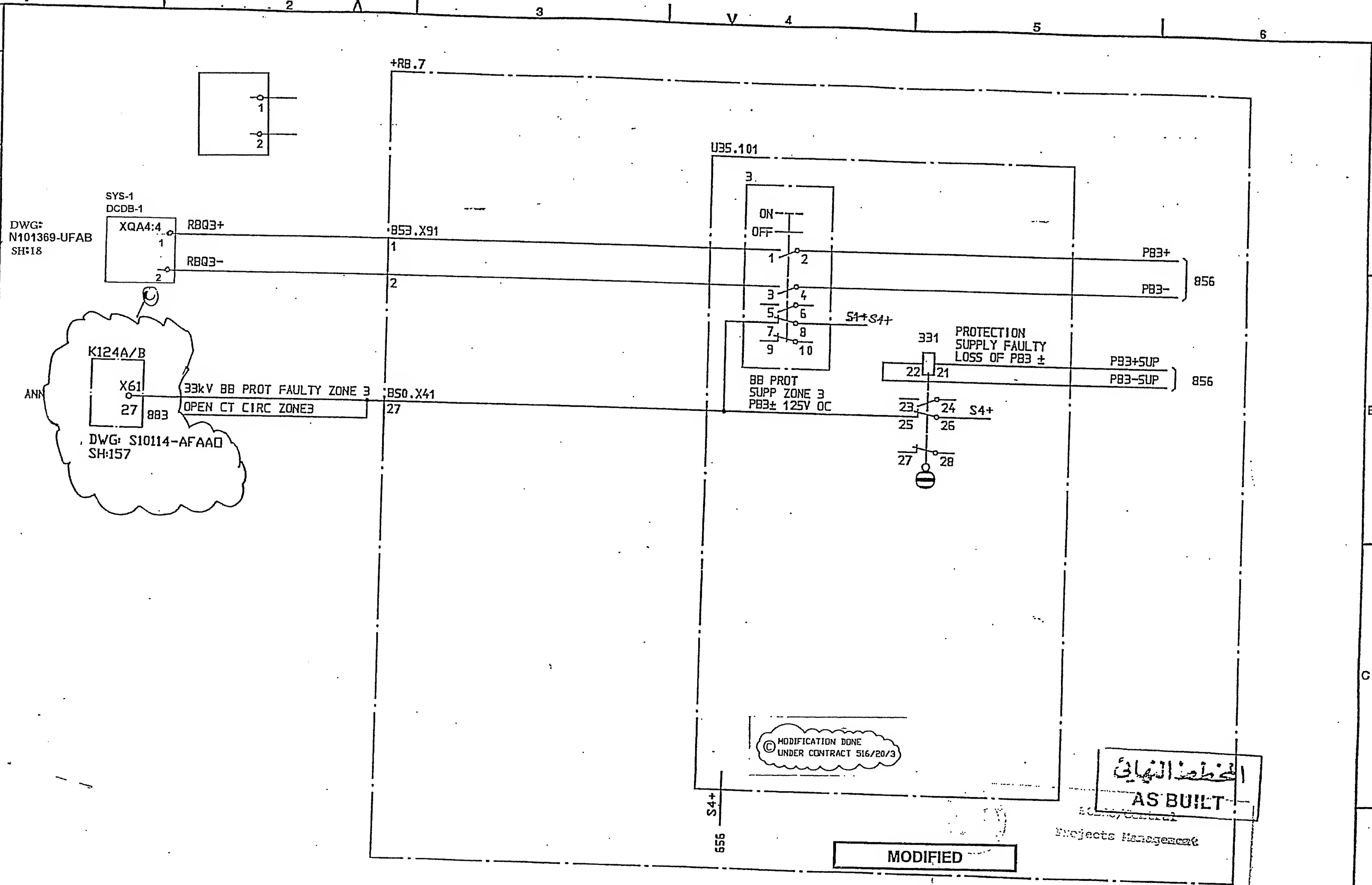
=72
33kV BUSBAR ZONE2
VOLTAGE TRANSFORMER -T36

B NILSSON
L SVENSSON
SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36

L 9743.1017
XL 824 028-FBR
Sheet 770
Sheet 771

ABB



SWG/TC

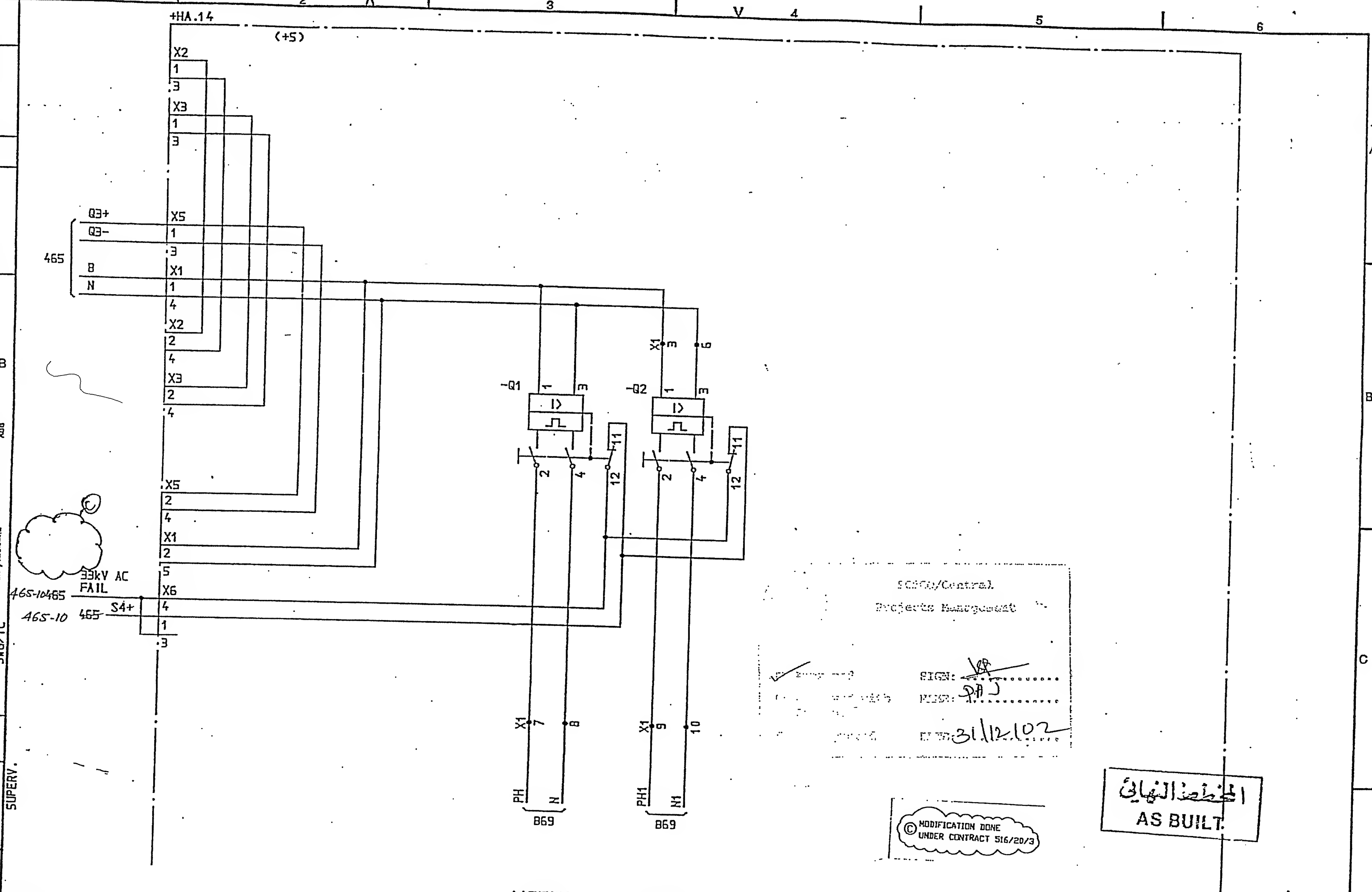
SYMBOL ID /0:XL824028-FBR:855/0 DATE 91-06-06 07.09

Rev Ind	Revision	Appd	Year Week			
1	AS BUILT	LS	91 21	=73 33kV BUSBAR ZONE3 PROTECTION SUPPLY VOLTAGE DISTRIBUTION	Design checked by: B NILSSON; Drawing checked by: J.SKOVGAARD; Drawn by: PN	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR — Iss by Dept: TDCF — Year Week: 90 08

L 9743.1017
XL 824 028-FBR

Sheet 855 — Cont 856 — Rev Ind 1



LIGHTING PANEL

HEATING PANEL

MODIFIED

SYMBOL ID /D:XL824028-FBR:868/0

DATE 91-06-06 07.09

=73

33kV BUSBAR ZONE3

DC AUX. VOLTAGE SUPPLY

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: SK

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

ABB HV SWITCHGEAR

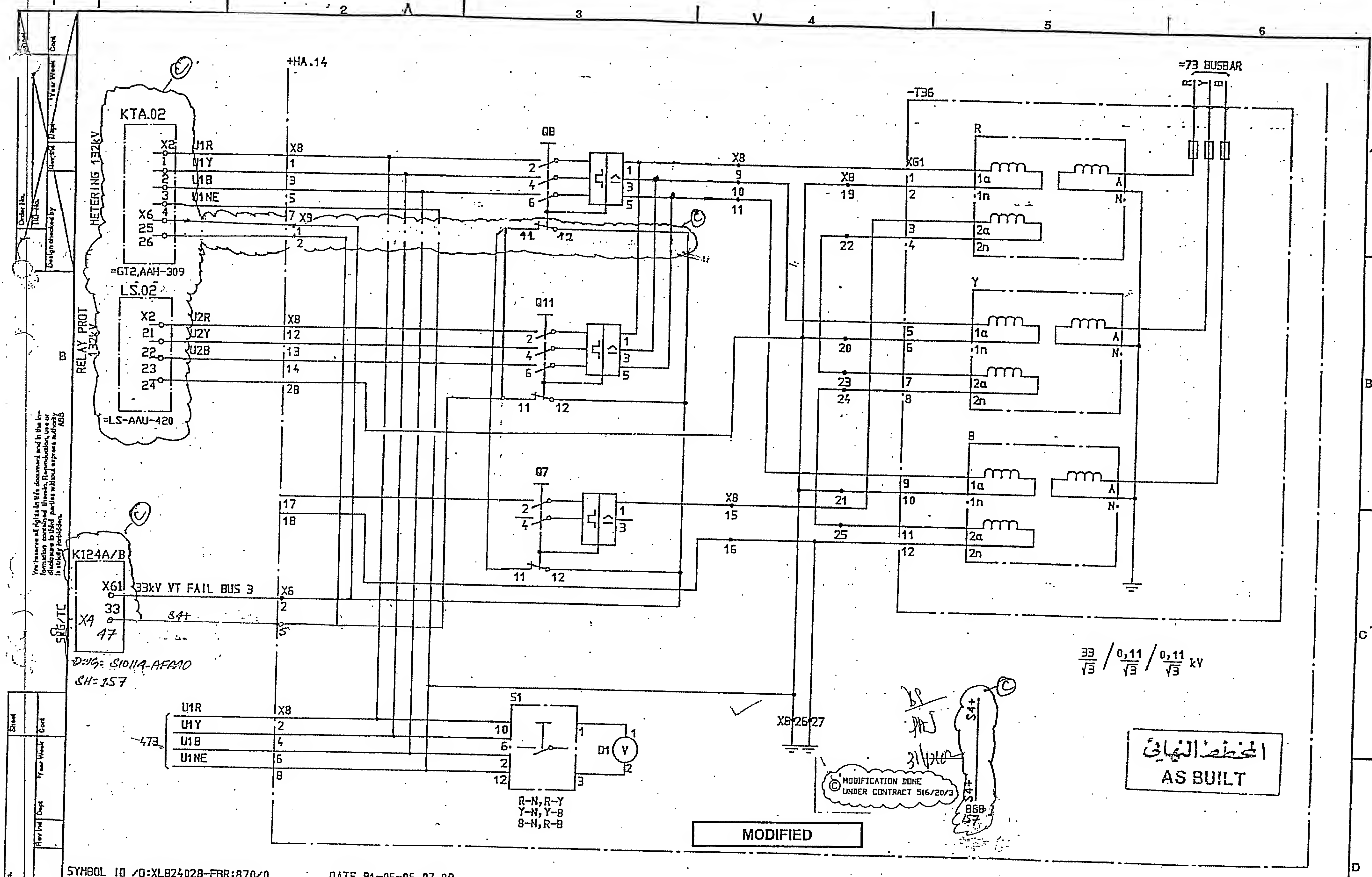
Iss by Dept: TDCF — Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 868 — Cont: 869 — Rev Ind: 1

SRG/TC

SUPERV.



SYMBOL ID /0:XL824028-FBR:870/0 DATE 91-06-06 07.09

1 AS BUILT	LS 91 21	=73 33kV BUSBAR ZONE3 VOLTAGE TRANSFORMER -T36	
Design checked by: B NILSSON	Drawing checked by: L SVENSSON	Drawn by: SK	
CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA	ABB HV SWITCHGEAR	TOCF 90 36	L 9743.1017 XL 824 028-FBR
Sheet 870	Cont 880		

+R8.7

U27.143 TRIP UNIT

880A

880A

301 PB3+ 13 14 22 23

307 PB3- 11 12 13 14 15 16 17 18

101

107

882 88 PROT TRIP 122 212 121 211

PB3- 11 21 12 22 13 23 14 24

368.10 =8 TRIP+ 853.X119 1 2 113 114

853.X119 10 11 =8 TRIP =8 TRIP 368.10

468-10 =10 TRIP1 3 4 115 116

12 13 =10 TRIP1 =10 TRIP1 468.10

+50V 905 5 6 213 214

TRIP 13,8kV CB 14 15 917

+HA.16 X9 1 X9 2 DWG. No. 98E0667 SHT. No. 021/C6

7 8 227 228

+HA.16 X9 3 X9 4 REF. DWG. No. 98E0667 SHT. No. 021/C6

1019 =8C TRIP+ 780 =8C TRIP+ 9 225 226 =8C TRIP 780

16 17 =8C TRIP 1019 18

PB3+ 223 224

+HA.16 REF. OWG. No. 98E0667 SHT. No. 016/C6 X9 5

B53 .X114 21 B50-X99 3 117 118 123 124

B53 .X114 22 B50-X99 4

+HA.16 X9 6 REF. DWG. No. 98E0667 SHT. No. 016/C6

+R0A X5 9

+R0A X5 50

PB3+ PB3- PB3+ PB3- 856

GT8-S10114-AAH SH: 161

S10114-AAH SH: 163

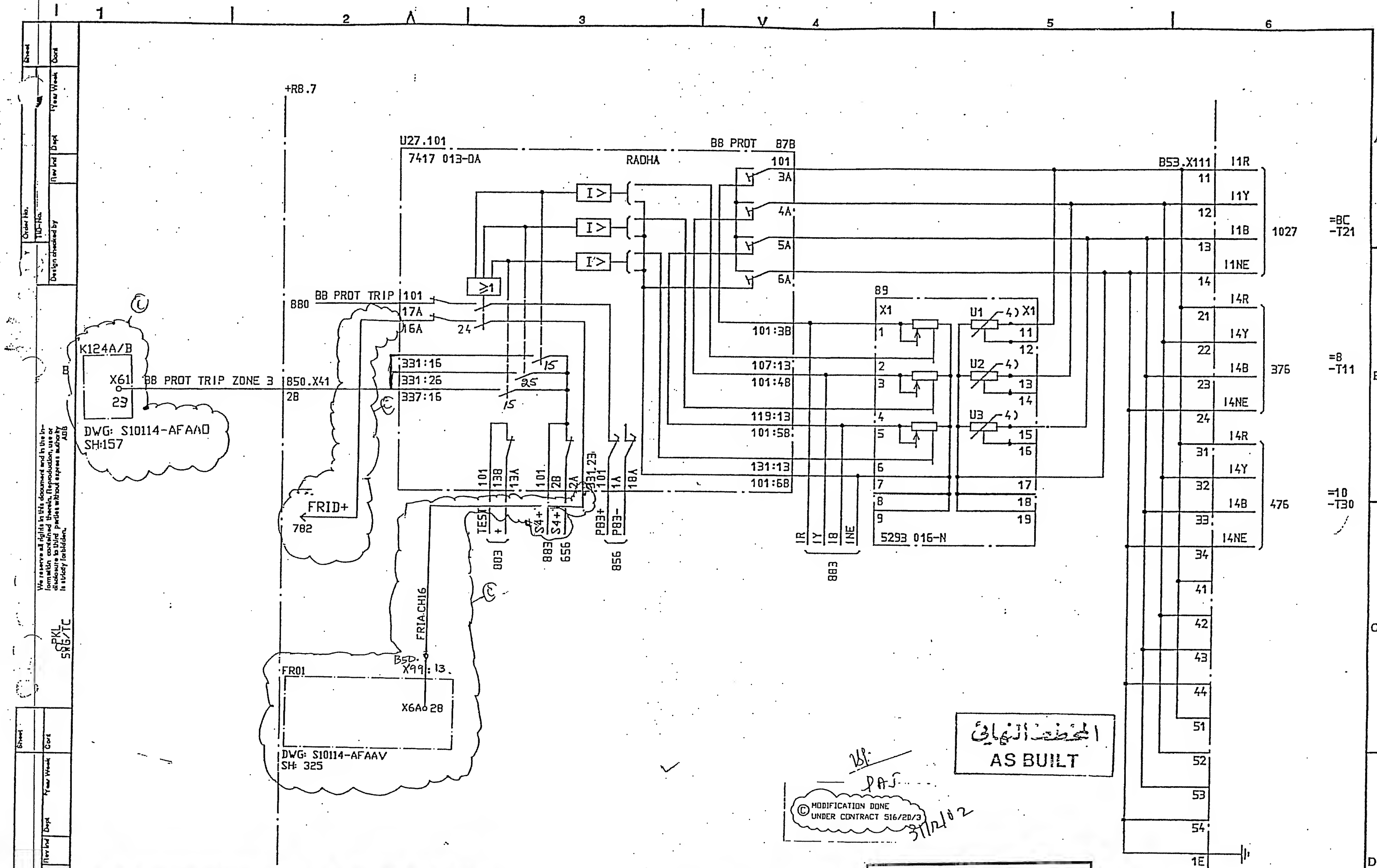
AS BUILT

SYMBOL ID /D:XL824028-F8R:880/0 DATE 91-06-06 12.40

2	REVISED TO SUIT EXTENSION		00 08	=73	Design checked by B NILSSON	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL	
1	AS BUILT	LS	91 21	33kV BUSBAR ZONE 3 BUSBAR PROTECTION TRIP UNIT	Drawing checked by B MALMROS		L 9743.1017 XL 824 028-FBR
Rev Ind	Revision	Appd	Year Week		Drawn by IA	ABB HV SWITCHGEAR	Iss by Dept TOCF Year Week 90 16

Rev Ind 2 Sheet 880 Cont 880A

ABB



MODIFIED

SYMBOL ID /D:XL824028-FBR:882/0 DATE 91-06-06 07.09

Rev Ind	Revision	Appd	Year Week
1	AS BUILT	LS	91 21

=73
33kV BUSBAR ZONE 3
BUSBAR PROTECTION

Design checked by: B NILSSON
Drawing checked by: B MALMROS
Drawn by: IA

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL
ABB HV SWITCHGEAR TDCF 90 16

L 9743.1017
XL 824 028-FBR

Sheet 882
Cont. 883
Rev Ind 1

ABB

SCADA EQUIPMENT

+XA.1

CIRCUIT BREAKER -710

AB.X1
1 CLOSE
2 RR+
3
4 R-
5 OPEN
6
7 OP/CL
8 R_-

AB.X2
1 OPEN
2 CLOSED
3 COMM

972

ECC/LOC CONTROL SELECTION

AB.X2
4 =AB LOC
5 =AB ECC
6 COMM

968

= 710
DWG: S10114-AFAAY
SH: 165

=710 S10114-AFAAY
SH: 172

These cable shifted from XA.1 To New FMK.
For reference check sheet No 968
972

31/12/02

المخطط النهائي
AS BUILT

MODIFIED

SYMBOL ID /O:XLB24028-FBR:962/0 DATE 91-06-06 07.10

1 AS BUILT	LS	91 21	=AB 33kV BUSSECTION	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by PN	CIRCUIT DIAGRAM S/S 8501 132/33kV SCECO CENTRAL SAUDI ARABIA
Rev Ind / Revision	Appd	Year Week	SCADA INTERFACE EQUIPMENT		ABB HV SWITCHGEAR; Des by Dept TCF; Year Week 90 10

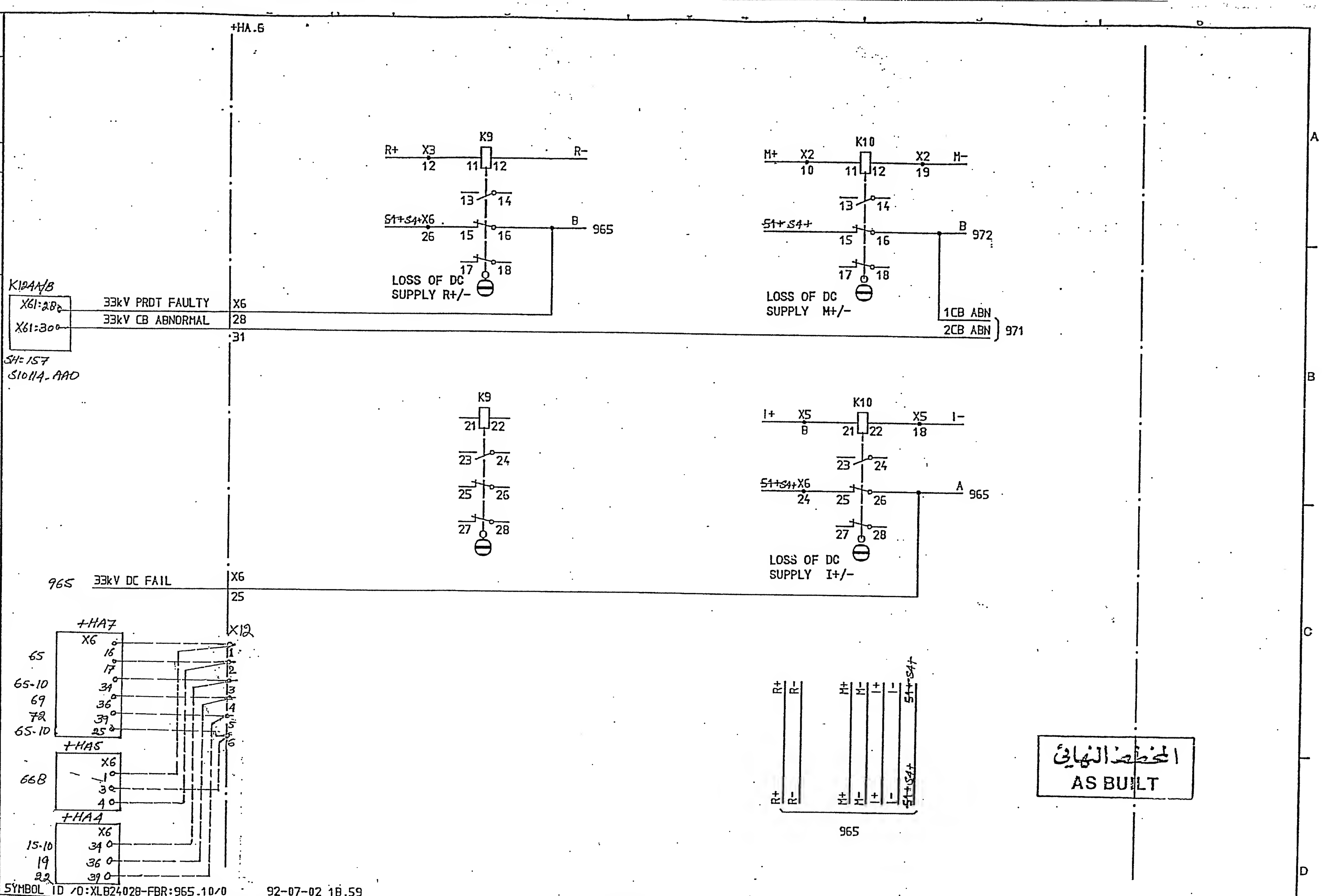
L 9743.1017
XL 824 028-FBR

Rev Ind 1; Sheet 965

Lang; Sheet 962

Rev Ind; Sheet

ABB



SYMBOL ID /0:XLB24028-FBR:965.10/0 92-07-02 18.59

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=AB
33kV BUS SECTION
DC AUX. VOLTAGE SUPPLY

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

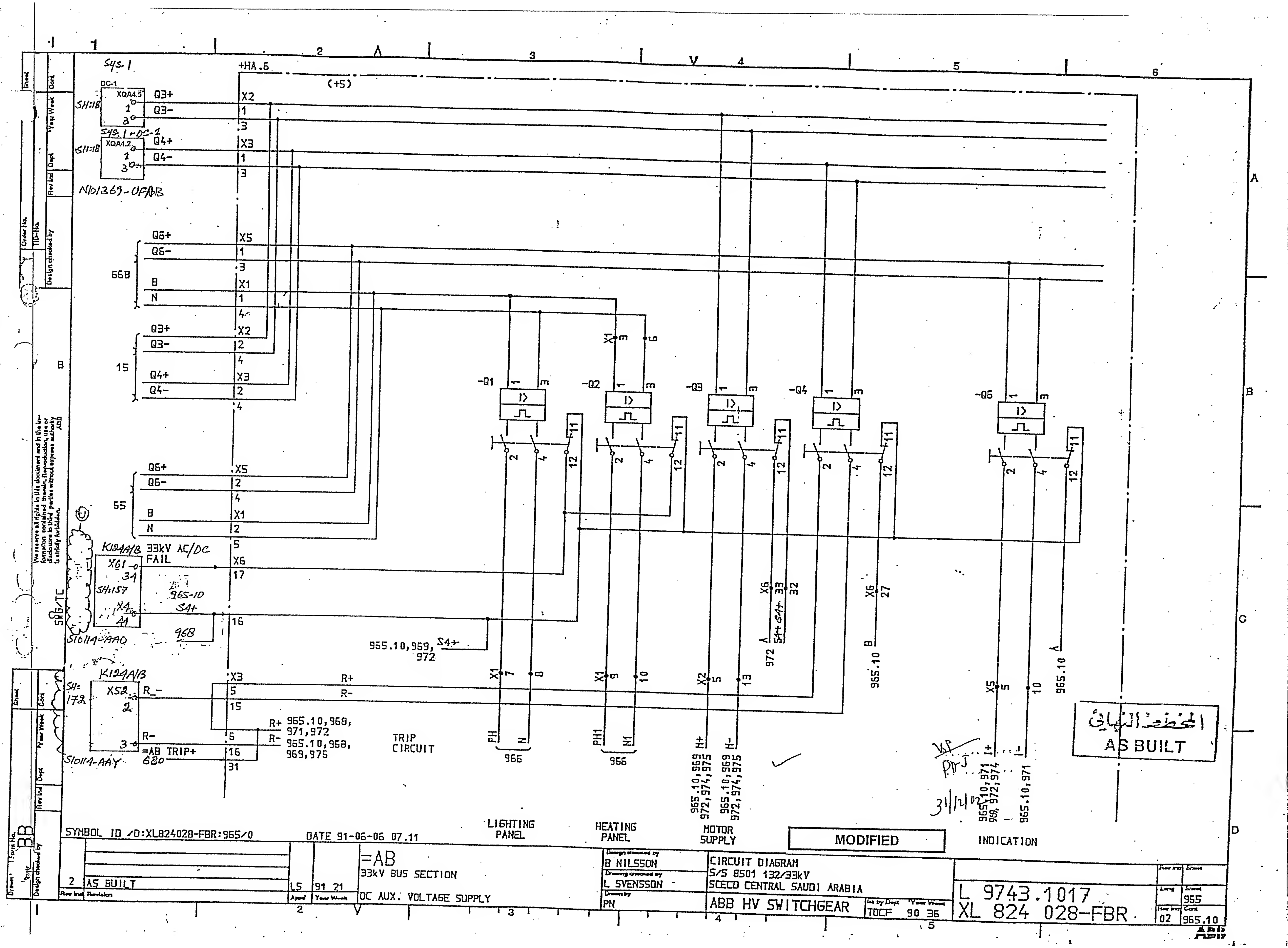
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

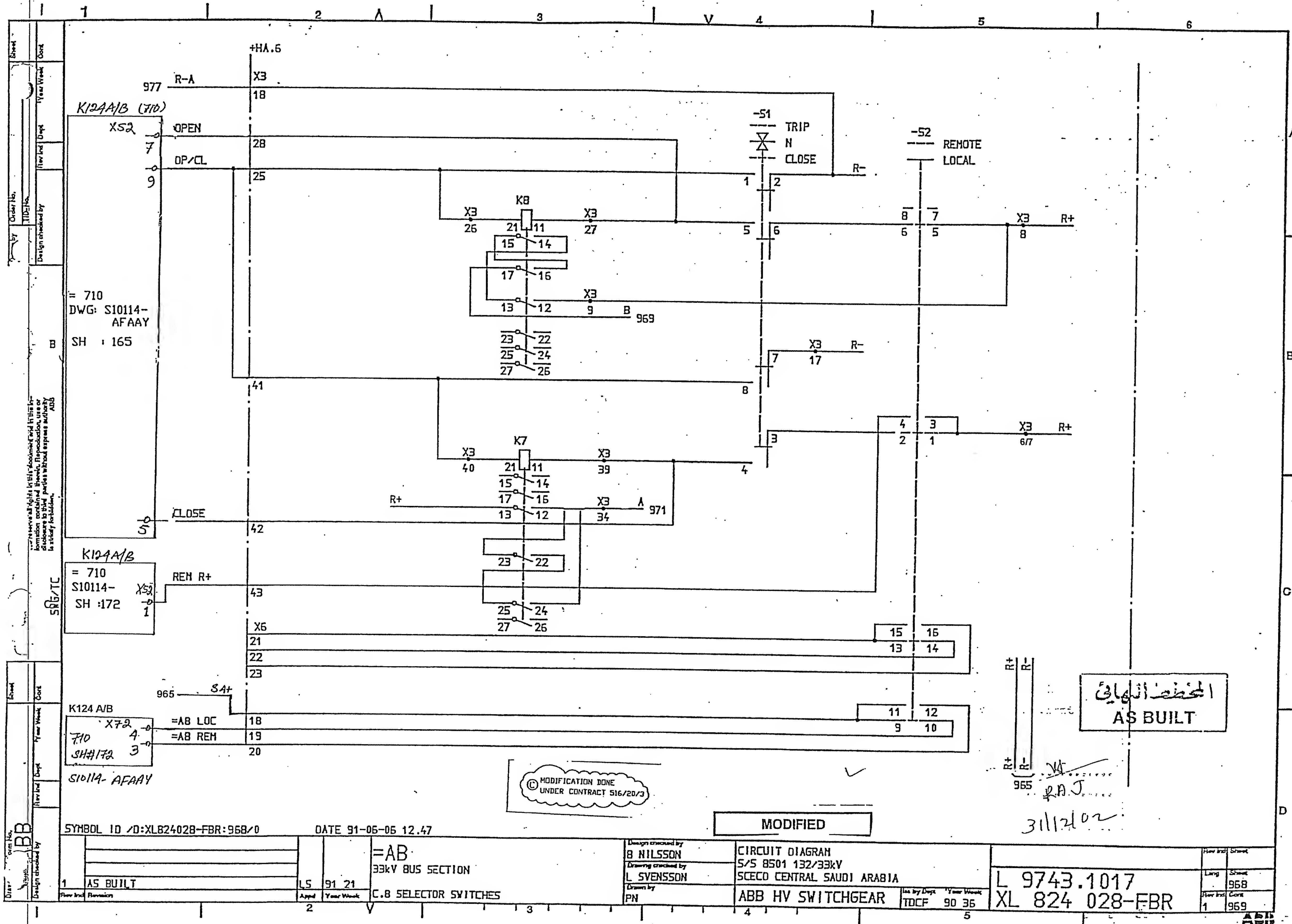
Issued by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet: 965.10
Cont: 966
Rev Ind: 2

SWG/TC


Sys. 1
DC-1
XQA4.5
SH:18
Q3+
Q3-
SYS. 1 - DC-2
XQA4.2
Q4+
Q4-
N101369-UFABB
+HA.6
(+5)
X2
X3
Q6+
Q6-
66B
B
N
X5
X1
15
65
K124A/B 33kV AC/DC FAIL
X61
SH:157
965-10 S4+
968
S1011A-AA0
965.10,969, 972
S4+
K124A/B
SH: 172
X52
R_-
R-
=AB TRIP+
680
S1011A-AAY
R+
965.10,968, 971,972
965.10,968, 969,976
TRIP CIRCUIT
-Q1
-Q2
-Q3
-Q4
-Q6
PH
N
966
PH1
N1
H+
H-
965.10,969 972,974,975
972
965.10
I+
I-
965.10,971 969,972,974
965.10,971
X6
S4+
A
B
LIGHTING PANEL
HEATING PANEL
MOTOR SUPPLY
MODIFIED
INDICATION
AS BUILT
31/12/02
SYMBOL ID /D:XL824028-FBR:965/0
DATE 91-06-06 07.11
2 AS BUILT
LS 91 21
=AB
33kV BUS SECTION
DC AUX. VOLTAGE SUPPLY
B NILSSON
L SVENSSON
PN
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
965
02 965.10
ABB



+HA.6
977 R-A X3 18
K124A/B (710)
X52 OPEN 7 28
OP/CL 9 25
-S1 TRIP N CLOSE
-S2 REMOTE LOCAL
R-
K8
X3 26
X3 27
X3 9 B 969
X3 8 R+
= 710
DWG: S10114-AFAAY
SH : 165
X3 17 R-
41
K7
X3 40
X3 39
R+
X3 34 A 971
CLOSE 5 42
K124A/B
= 710
S10114-
SH :172
REM R+ 43
X3 6/7 R+
X6 21 22 23
965 SA+
K124 A/B
X72
710
SH#172
S10114- AFAAY
=AB LOC 18
=AB REM 19
20
R+ R-
965
MODIFICATION DONE UNDER CONTRACT 516/20/3
MODIFIED
المخطط النهائي
AS BUILT
R.A.J.
31/12/02
SYMBOL ID /D:XL824028-FBR:968/0
DATE 91-06-06 12.47
1 AS BUILT LS 91 21
=AB
33kV BUS SECTION
C.8 SELECTOR SWITCHES
B NILSSON
L SVENSSON
PN
CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
TDCF 90 36
L 9743.1017
XL 824 028-FBR
968
969
SNG/TC

+HA.6

-710 (-QO)

X6
48
47
46
45
39
42
38
44
43
41
40

969 C X3
24

XG1
9
10
18
Y2
C2
C1
54
14
13

XG2
14
54
53
XG1
13
20
42
41
19
XG2
16
32
31
15
4
22
21
3

55
2
14
13
1
6
44
43
5

49
10
54
53
9
12
32
31
11
8
22
21
7

LS.02
X4C
25 R3-
19 R3-
20
DWG: S10114-AFAAU
SH : 420

B 971
A 971

MODIFIED

المخطط النهائي
AS BUILT

VS
PAS
31/12/02

SYMBOL ID /D:XL824028-FBR:970/0 DATE 91-06-06 07.11

1 AS BUILT LS 91 21

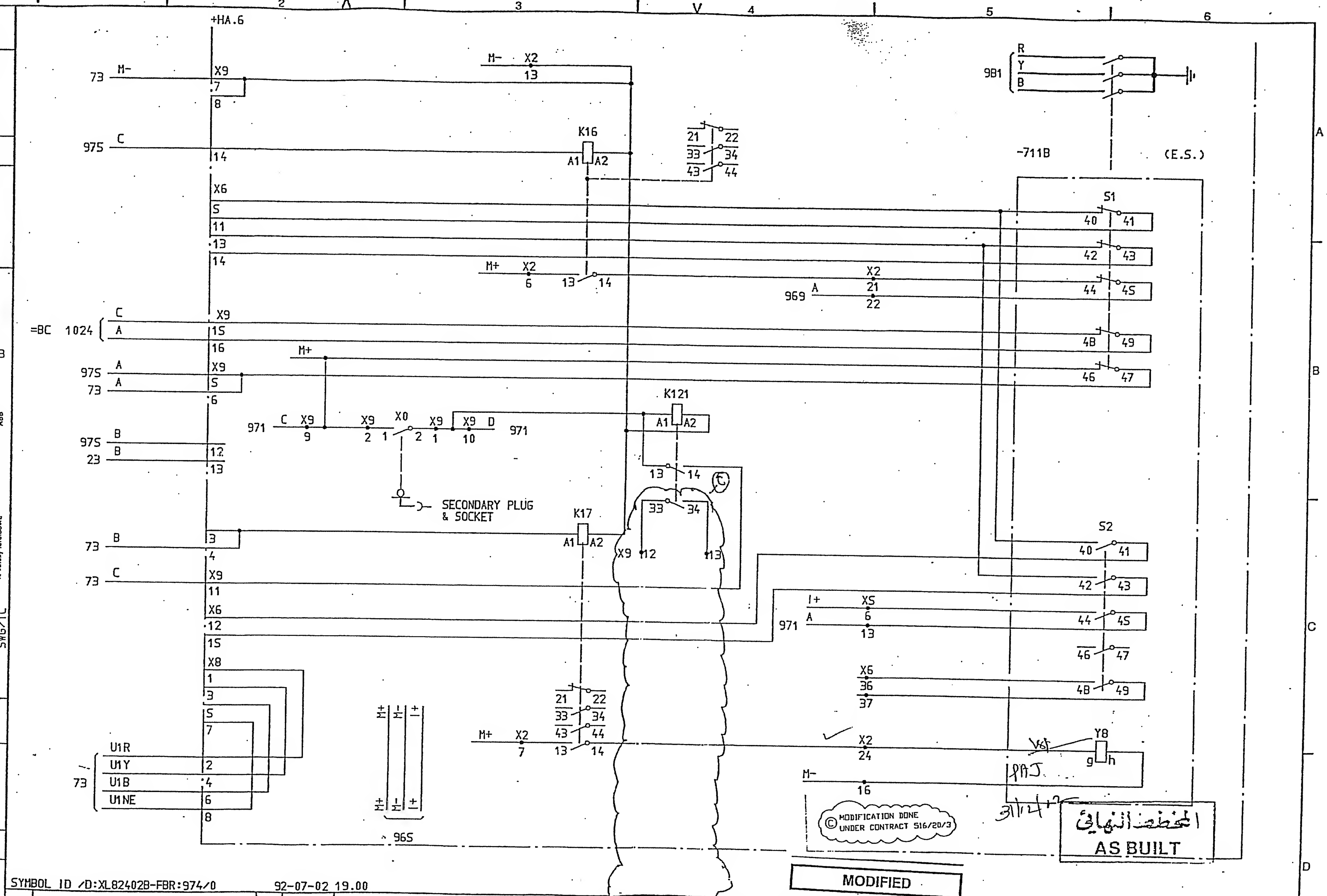
=AB
33kV BUS SECTION

Design checked by B NILSSON
Drawing checked by L SVENSSON
Drawn by

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA

L 9743.1017

Sheet 970
Sheet 971



SYMBOL ID /D:XL82402B-FBR:974/0 92-07-02 19.00

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

=AB
33kV BUS SECTION
EARTH SWITCH EQUIPMENT -711B
AND INTERLOCKING RELAY

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR

Iss by Dept: TDCF Year Week: 90 36

L 9743.1017
XL 824 028-FBR

Sheet 974
Cont 975
Rev Ind 2

+HA.11

+HK06
X61
12
15
SIOII4-AFAAE
EH# 155

33kV PROT FAULTY — X6
33kV CB ABNORMAL — 28
31

K9
R+ X3 12 — 11 12 — R-
13 14
S3+ X6 26 — 15 16 — B 1015
17 18
LOSS OF DC SUPPLY R+/-

K10
M+ X2 10 — 11 12 — X2 19 — M-
13 14
S3+ — 15 16 — B 1022
17 18
LOSS OF DC SUPPLY M+/-
1CB ABN
2CB ABN } 1021

K9
21 22
23 24
25 26
27 28

K10
I+ X5 8 — 21 22 — X5 18 — I-
23 24
S3+ X6 24 — 25 26 — A 1015
27 28
LOSS OF DC SUPPLY I+/-

1015 33kV DC FAIL — X6 25

+HA12
X6
365 — 16
365-10 — 17
369 — 34
372 — 36
365-10 — 39
25
X12
1 2 3 4 5 6

+HA.10
X6
768 — 1
9

+HA9
X6
265-10 — 34
269 — 36
272 — 39
265-10 — 25

R+ R- H+ H- I+ I- S3+
1015

المخطط النهائي
AS BUILT

SYM80L ID /D:XL824028-F8R:1015.10/0 92-07-02 19.00

Rev Ind	Revision	Appd	Year Week
2	SCECO SNAG	LS	92 26
1	AS BUILT	LS	91 21

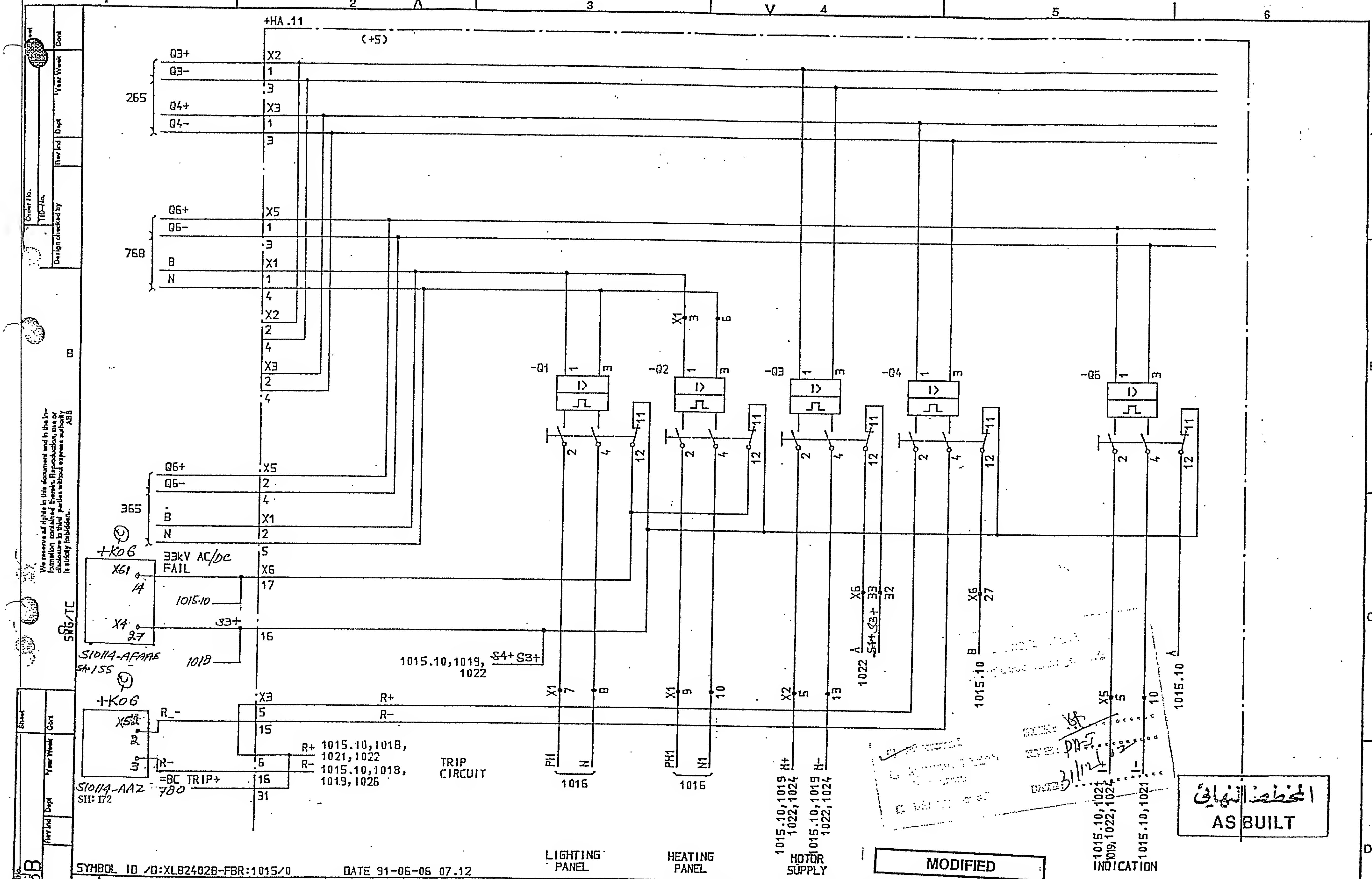
=BC
33kV BUS SECTION
DC AUX. VOLTAGE SUPPLY

Design checked by: B NILSSON
Drawing checked by: L SVENSSON
Drawn by: PN

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR
Issued by Dept: TDCF
Year Week: 90 36

L 9743.1017
XL 824 028-FBR
Rev Ind: 2
Sheet: 1015.10
Cont: 1016

ABB



2 AS BUILT	LS 91 21	=BC 33kV BUS SECTION DC AUX. VOLTAGE SUPPLY	Design checked by B NILSSON; Drawing checked by L SVENSSON; Drawn by PN
Rev Ind Revision	Appd Year Week		

CIRCUIT DIAGRAM
S/S 8501 132/33kV
SCECO CENTRAL SAUDI ARABIA
ABB HV SWITCHGEAR — Iss by Dept TDCF — Year Week 90 36

L 9743.1017
XL 824 028-FBR

Rev Ind .02 — Sheet 1015 — Cont 1015.10

ABB

+HA.11

=BC TRIP+ X3 29

=BC TRIP 30

780 =BC TRIP X3 32

LSO2 X5C2 3 4 427 327 X5B2 41 42 =BC TRIP+ =BC TRIP X3 12 13

DWG: S10114-AFAAU

880 =BC TRIP+ =BC TRIP

K5 21 11 16 17 15 26 25 27 18 28 R+ R-

I+

101B B

K6 21 11 16 17 15 26 25 27 18 28 R+ R-

1020 C

1027 R-B X3 19 R-

+K06 X61 13 33KV TRIP CIRCUIT FAULTY X6 30

DWG:S10114-AFAAE SH: 155

K19 12 11 SERV. POS. 1021 14 13 S3+ 16 15 18 17 TC FAULTY

R- H+ H- H- S3+ I+ 1015

M- K11 21 22 25 26 27 28 S4+ 23 24 C 1022 CB SPRING UNCHARGED

K13 11 21 15 16 17 25 26 27 15s

1024 A X2 23 Y1 g h X2 M- 15 (-Q0)

1031 R Y B 1030

-720

R- XG1 2 Y3 C2 C1 S6 4 3 53 51 32 31 14 13 2 1 K0 B A R0 54 53 4

XB.F-1.105 SH.81

1022 A X2 26 B M+ 25 8 1 16 15 14 13 22 21 14 13

X3 33 23

Y9 21 22 17 C2 C1 44 43

X2 30 5 M+ 3 M- X2 14 4 11 12 32 31 M0 42 41 M 54 53

SIGN: NAME: DATE: 31.12.02

Approved with Comments

Disapproved

المخطط النهائي

AS BUILT

MODIFIED

SYMBOL ID /D:XL824028-FBR:1019/0 92-07-02 19.00

Rev Ind	Revision	Appd	Year Week		
2.1	SCECO SNAG	LS	92 26	=BC	
1	AS BUILT	LS	91 21	33kV BUS SECTION	
				CIRCUIT BREAKER EQUIPMENT -720	

Design checked by	B NILSSON
Drawing checked by	L SVENSSON
Drawn by	PN
	CIRCUIT DIAGRAM
	S/S 8501 132/33kV
	SCECO CENTRAL SAUDI ARABIA
	ABB HV SWITCHGEAR
Iss by Dept	TDCF
Year Week	90 36

L 9743.1017
XL 824 028-FBR

Rev Ind	Sheet
Lang	Sheet 1019
Rev Ind	Cont 1020

ABB